THE THEORY OF SOCIAL ECONOMY

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APPENDIX I

TO THE FIRST BOOK

THERE is a very widespread idea that the experiences of the World War have upset all previous theory of national economy; that everything is changed beyond expectation; that the whole of the old economic theory has broken down; and that, if there can any longer be question of such a science, it must be reconstructed from the foundations.

That is not the case. The economic theory that is presented in this work remains sound after all the experiences of the War, and is a suitable foundation for the scientific treatment of the new facts which the War has provided. The political-economic measures of the belligerent and the neutral nations also are critically illuminated in the light of this theory; and fatal errors in this sphere could have been avoided if there had been a more accurate knowledge of the principles of pricing and the theory of money.

Here we will examine the phenomena of the war-economy from the point of view of the general theory of pricing given in Book I. This is based upon a conception of the exchange economy broad enough to embrace not only the traditional social order, but even a Socialist system. Does this broad conception of the social economy suffice to explain all the phenomena of the war-economy? No, the war-economy has really introduced an essentially new element; one which is outside the range of every exchange economy, and therefore cannot be considered by our theory of prices. This new element of the war-economy is *rationing*.

According to our definition the exchange economy is characterised by the fact that each individual economy within the limits of its income has full liberty in the choice of consumption. This liberty, which would remain even under Socialism, is restricted by rationing, and so this is an essentially new element, and really the only new element the war-economy introduced. Rationing is of its very nature a Communist principle. It has, however, not displaced the exchange economy, but been added to it.

In the exchange economy the demands of consumers are kept by prices within such narrow limits that they can be met with the available supply of utilities. This necessary limitation of consumption, which pricing secures with mild means suited, as far as possible, to individual wishes, is effected in a much more rigorous way by rationing. This, however, does not abolish the restrictive action of fixing prices. A price has to be paid for the rationed commodities, and it is conceivable that some consumers will be induced by the pressure of prices to curtail their requirements even more than the rationing intends. In any case, paying for the rationed commodities requires a certain purchasing capacity, and therefore proportionately reduces the purchasing capacity for other utilities. Hence pricing retains its function of restricting consumption even under a rationing scheme.

The price of a rationed commodity may obviously be lower than it would otherwise be. If this were not so, the price alone would suffice to secure the necessary limitation of consumption, and rationing would be superfluous. If the rationing, with all its inconveniences, is to be justified at all, it must facilitate a much lower price than would otherwise be necessary. Hence rationing was especially advisable in cases where without it prices would have to have risen very considerably more in order to restrict consumption sufficiently. This applies especially to commodities of primary necessity. The demand for such things is very inelastic, and in case of great scarcity can only be sufficiently checked by an abnormal rise of prices. But this would affect consumers very unequally. Certain strata of the population would not need to limit themselves, and others would have to restrict their consumption all the more. Moreover, excessive prices would in many cases put too heavy a burden on the purchasing capacity, and so reduce out of all proportion the capacity for consuming other utilities.

Bread is the leading example of a commodity for which rationing may be desirable for this reason in case of great scarcity. This is not, however, as is often supposed, to restrict the consumption of the wealthier classes. What is gained by such restriction gives only a very slight addition to the share of the rest of the population. The significance of rationing bread is rather in the restriction of the consumption of the better-paid workers. During the War large numbers of these workers, both in belligerent and neutral countries, earned a great deal of money, and very high prices of wheat would have been necessary if their demands for it were to be checked sufficiently by prices alone. Hence the rationing of bread means mainly a more equable distribution of the available supply amongst the economically very unequally placed groups and individuals within the working class.

It may be asked whether rationing is likely to survive the War and be retained permanently alongside of pricing as a means of restricting consumption? In answering this question we must bear in mind that the lower price made possible by rationing generally also means a smaller production, a worse supply of the rationed commodity to the community. The productive forces are directed too extensively to non-rationed utilities. This direction of production is not in harmony with the wishes of consumers, who would have their wants met better without rationing. As, moreover, rationing costs a good deal both in money and in special inconveniences to individuals, we must assume that there will only be question of it in cases where there is a temporary and insuperable scarcity of some commodity of primary necessity. In such cases it must be regarded as a valuable supplement of the economic method of the normal system.

The theoretical treatment of pricing in an economy subject to a certain amount of rationing offers no particular difficulties; it requires only some slight modifications of the theory of pricing in the normal economy. The assumptions we have made in regard to this economic form represent the essentials from which all economic theory must start, and the working out of a theory of prices on these foundations is the first task of economic science. The War has made no change in this respect.

The direct Government interferences with prices that often occurred in every country during the War must not be regarded as modifications of the exchange economy that might require a modification of the theory of pricing; they must be treated simply as arbitrary attempts to modify the pricing process. They are always based upon a defective knowledge of the inherent necessity of the process, and must yield results that were not foreseen. These disturbances can very well be dealt with within the lines of the given theory. The value of a sound theory of prices has been shown very clearly during the War in the sense that the unfortunate consequences of arbitrary interferences could have been foreseen. Practically, this value has, unfortunately, been very much reduced, as the leaders of the economic policy troubled themselves very little about a sound economic theory.

What was especially lacking was the knowledge of the fact that pricing has a socio-economic object. The Government measures for regulating prices generally started from a very primitive idea of prices. This was seen in cases where the price-policy of the State was combined with the seizure of a commodity, or a monopoly of the imports and exports of it. In those cases the State had to fix a price, and it generally calculated this on the basis of a perfectly naïve theory of cost which often took into account only general average cost without any regard to the differential principle. This, naturally, was bad for the producers with heavier costs, and it unnecessarily restricted the total output. But the most important blunder was that the socio-economic task of prices, which consists in checking the demand was entirely overlooked. As the State, without regard to this object, put its prices too low the demand could only be met by having a strict rationing at the same time. It often happened that the State, in order to secure a tolerably satisfactory supply, fixed a fairly high purchase price, and at the same time offered the thing to consumers at a lower price and covered the difference itself. That is, obviously, a violation of the principle of cost. As the means for such abatement must be found somewhere, it is very doubtful whether anything more than an apparent advantage is to be got in this way. As a matter of fact, the means were mostly got by a consumption of savings. The injury that this did to the accumulation of capital has had very unpleasant consequences since the War, and large sections of the population, especially the industrial workers, have been hard hit by them.

Particularly irrational was the pricing policy of the State when it simply tried to control prices by legislation. The evil experiences of the effects of maximum prices have accumulated in such abundance since the very dawn of history that any repetition of this policy ought to have been out of the question.

The policy of a maximum price often sins against the principle of cost, and nearly always also against the principle that prices must be sufficiently high to secure an adequate restriction of the demand. In this way maximum prices cause, *first*, an uneconomical diversion of the social productive factors, which are taken away from some particularly desirable production; *secondly*, a slackening of the interest of the producer and consequently a reduction of the social productivity; *thirdly*, an uneconomical consumption for purposes which ought not to be met on sound pricing principles, or a consumption not sufficiently restricting present wants and therefore providing badly for the future; *fourthly*, an uneconomic use of materials and consumable goods within the productive sphere, because they would have to be sold outside, only at the maximum prices; and, *fifthly*, an artificial strengthening of the purchasing capacity for commodities, perhaps less useful, without maximum prices, so that the prices of them are driven excessively high.

All these results, theoretically foreseen, were realised; and so abundantly that they form a rich collection of good examples to illustrate the theory of prices. The numerous and often fatal blunders of the State-regulation of prices could have been avoided for the most part if there had been more knowledge of the socio-economic object of pricing as the regulator of the economy generally.

The experiences in regard to the State-regulation of prices which were gathered during the War can thus only emphasise the value of having a firm and clear theory of prices. They certainly involve no change in the account given in this work.

APPENDIX II

TO THE THIRD BOOK

THE results of the War in the financial sphere have somewhat astonished the world. No one had imagined that anything of the kind could happen. The business world and the leaders of finance in all countries were thrown into confusion, and to this day they have not been able to get a correct and clear idea of what has happened. The explanations of the rise of prices, the increase of circulation, and the movements of the international exchanges, which were published officially and in financial journals, were mostly quite untenable, and gave no clue to the inner nature of events.

Economic science has a great task here. There are really two new experiences of fundamental importance which must now be used in a further development of the theory of money: first, the direct dependence of the general level of prices upon the deliberate creation of new media of payment; secondly, the predominant influence of the relative value of money in various countries upon the exchanges between them. From the beginning of the War I took pains to collect material to illustrate these matters and try to extract from them a consistent explanation of the phenomena. My results have been published in various periodicals and books during the War. I afterwards collected them in my *Memorandum on the World's Monetary Problems*, which was compiled at the invitation of the committee of the League of Nations for the International Financial Conference, at Brussels in 1920. There was a second memorandum in 1921.*

In the main these studies are based upon the fundamental theory of money that is presented in the present volume. This foundation may as a whole remain unchanged. Neither have I here made any change in my account of money, but have published it, with unimportant additions, just as it was written before the War. This is true also of a point on which my idea has been somewhat changed by the experiences of the War: the question of the effect on prices of an increase of the quantity of money. I have always opposed—as is clear from my eleventh chapter—the purely dogmatic conception of the quantity theory, and have never been associated with those supporters of the theory who, ~~like~~ Irving Fisher, put it forward as a self-evident truth. The dependence of the level of prices upon changes in the quantity of money could, in my opinion, only be settled by experience. These experiences, however, could only be acquired by the use of the simplest standard, the paper standard. During the War nearly all the standards in the world became paper standards, and the quantities of paper money became gradually very considerable, but increased in different degrees. Here was an opportunity to study the influence of the quantity of money on prices such as we had never had before.

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* Both memoranda were published by Constable (London).

The chief result that adds to our knowledge is that a new creation of media of payment in order to strengthen the social purchasing capacity immediately causes a proportionate rise of the general price level, with an increase of media of payment remaining in the hands of the public. The sequence is that the artificially newly created purchasing power, since it is in competition with what already exists, sends up prices, and that at the higher prices a correspondingly larger quantity of media of payment is required to meet trade-needs. For the latter reason there is a proportion between the increase of the media of payment and the rise of the general price level. The real cause of the advance of prices is in any case the artificial increase of purchasing power by the creation of new media of payment. This method of representing matters differs clearly from the usual account of the quantity theory.

The second experience of importance to the theory of money which the War gave refers to the international exchanges. The theory of exchanges was hitherto chiefly concerned with the case in which the two standards to be compared were based upon gold. But this is, as we saw in the twelfth chapter, a complex case, and is not fitted to bring out clearly the essential points of the theory of the exchanges. It is only by studying the theoretically simplest case, where there is a paper standard on both sides, that it is possible to discover the essential determining factor of the rate of exchange. The War has given us the opportunity we never had before, as it converted nearly all the standards in the world into paper standards which steadily, but unevenly, deteriorated.

My studies in this sphere could be based immediately on the theory of international payments expounded in my twelfth chapter. The chief result is that the rate of exchange between two countries with a paper standard is determined by the ratio of the value of money in one and the other country. As this money value is measured by the purchasing power of the money in the relevant country, we may say that the chief determining factor of the rate of exchange lies in the ratio of the inherent purchasing power of the money in the one and the other country. This represents the equilibrium of the exchange, and may conveniently be called the *parity of purchasing power* of the two countries. The rate of exchange is therefore primarily determined by the parity of purchasing power. This result holds good even in the case of a gold standard, as is easy to see from the idea of a gold standard that is given in the course of the work.

My investigations of the monetary experiences during and after the War are represented systematically in my book: *Money and Foreign Exchange after 1914* (London: Constable; New York: Macmillan), which I should like to have regarded as a complement to the account of the theory of money as given in the present work.

TABLE I

The Sauerbeck Index Figures 1846–1913; for the Period 1850–1910 the Same Figures are divided by the Relative Gold-Supply (in Third Column.)*

Year.	*Index Figures.*	*Di-vided.*	*Year.*	*Index Figures.*	*Di-vided.*
1846	89		1879	83	76
1847	95		1880	88	81
1848	78		1881	85	79
1849	74		1882	84	79
1850	77	77	1883	82	79
1851	75	74	1884	76	73
1852	78	75	1885	72	71
1853	95	89	1886	69	69
1854	102	94	1887	68	69
1855	101	91	1888	70	72
1856	101	90	1889	72	75
1857	105	93	1890	72	75
1858	91	80	1891	72	76
1859	94	82	1892	68	73
1860	99	85	1893	68	73
1861	98	84	1894	63	68
1862	101	86	1895	62	67
1863	103	88	1896	61	66
1864	105	90	1897	62	67
1865	101	86	1898	64	69
1866	102	87	1899	68	73
1867	100	85	1900	75	80
1868	99	85	1901	70	75
1869	98	84	1902	69	74
1870	96	82	1903	69	74
1871	100	86	1904	70	74
1872	109	94	1905	72	76
1873	111	97	1906	77	80
1874	102	89	1907	80	82
1875	96	85	1908	73	74
1876	95	84	1909	74	75
1877	94	84	1910	78	78
1878	87	79			

* From *Wholesale and Retail Prices* (London, 1903) and the *Journal of the Royal Stat. Soc.*

TABLE II

THE WORLD'S GOLD-SUPPLY (IN MILLIONS OF MARKS.)

Year.	*Actual.*	*Normal.*	*Relative.*
1800	7,535	2,531	2·98
1810	7,875	3,332	2·36
1820	8,033	4,385	1·83
1830	8,265	5,772	1·43
1840	8,660	7,597	1·14
1850	10,000	10,000	1·00
1855	12,680	11,470	1·11
1860	15,370	13,160	1·17
1865	17,795	15,100	1·18
1870	20,335	17,320	1·17
1875	22,555	19,880	1·13
1876	22,973	20,435	1·12
1877	23,428	21,005	1·12
1878	23,900	21,591	1·11
1879	24,319	22,193	1·10
1880	24,735	22,800	1·08
1881	25,146	23,448	1·07
1882	25,525	24,102	1·06
1883	25,884	24,774	1·04
1884	26,272	25,465	1·03
1885	26,650	26,160	1·02
1886	27,046	26,890	1·01
1887	27,433	27,640	0·99
1888	27,836	28,411	0·98
1889	28,272	29,204	0·97
1890	28,775	30,010	0·96
1891	29,266	30,847	0·95
1892	29,823	31,708	0·94
1893	30,424	32,593	0·93
1894	31,124	33,502	0·93
1895	31,885	34,430	0·93
1896	32,670	35,391	0·92
1897	33,596	36,378	0·92
1898	34,733	37,392	0·93
1899	35,951	38,435	0·94
1900	36,975	39,510	0·94
1901	37,970	40,612	0·93
1902	39,140	41,745	0·94
1903	40,438	42,910	0·94
1904	41,815	44,107	0 95
1905	43,336	45,320	0·96
1906	44,970	46,584	0·97
1907	46,614	47,884	0·97
1908	48,381	49,220	0·98
1909	50,192	50,593	0·99
1910	52,003	52,000	1·00

TABLE III

INDEX-CURVES OF CLEARINGS IN LONDON AND NEW YORK, 1870-1910.*

Year.	*London.* Clearings Divided by the Absolute Gold-Supply.	*London.* In Percentages of the Average.	*New York.* Clearings Divided by the Absolute Gold-Supply.	*New York.* In Percentages of the Average.
1870	192	79	137	98
1871	231	95	141	101
1872	278	115	159	114
1873	286	118	164	117
1874	267	110	104	74
1875	248	102	111	79
1876	217	90	94	67
1877	214	88	106	71
1878	209	86	94	67
1879	202	83	104	74
1880	235	97	151	108
1881	255	105	194	139
1882	243	100	183	131
1883	228	94	156	111
1884	221	91	135	93
1885	206	85	95	68
1886	219	90	124	89
1887	223	92	128	91
1888	248	102	111	79
1889	269	111	123	88
1890	271	112	131	94
1891	232	96	116	83
1892	218	90	122	87
1893	214	88	113	81
1894	203	84	78	56
1895	238	98	89	64
1896	232	96	90	64
1897	223	92	93	66
1898	233	96	115	82
1899	256	106	159	114
1900	243	100	141	101
1901	253	104	203	145
1902	256	106	191	136
1903	250	103	175	125
1904	258	104	143	102
1905	283	117	212	151
1906	282	116	231	165
1907	273	113	205	146
1908	250	103	152	109
1909	269	111	198	141
1910	283	117	197	141
Average ...	242		140	

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* From the *Stat. Abstr. for the U.K.* and the *Stat. Abstr. of the U.S.*

TABLE IV

German and English Discount Rates (Annual Averages.)*

Year.	*Berlin.*		*London.*	
	Bank.	*Market.*	*Bank.*	*Market.*
1872	4·29	—	4·10	—
1873	4·93	—	4·79	—
1874	4·38	—	3·69	—
1875	4·71	—	3·23	—
1876	4·16	—	2·61	—
1877	4·42	—	2·90	—
1878	4·34	—	3·78	—
1879	3·70	—	2·51	—
1880	4·24	—	2·76	—
1881	4·42	—	3·40	—
1882	4·54	—	4·15	—
1883	4·05	—	3·57	—
1884	4·00	—	2·96	—
1885	4·12	—	2·93	—
1886	3·28	—	3·05	—
1887	3·41	—	3·38	—
1888	3·32	—	3·30	—
1889	3·68	2·63	3·55	3·25
1890	4·52	3·78	4·54	3·71
1891	3·78	3·02	3·32	1·50
1892	3·20	1·80	2·52	1·33
1893	4·07	3·17	3·05	1·67
1894	3·12	1·74	2·11	1·69
1895	3·14	2·01	2·00	0·81
1896	3·66	3·04	2·48	1·52
1897	3·81	3·09	2·64	1·87
1898	4·27	3·55	3·25	2·65
1899	5·04	4·45	3·75	3·29
1900	5·33	4·41	3·96	3·70
1901	4·10	3·06	3·72	3·20
1902	3·32	2·19	3·33	2·99
1903	3·84	3·01	3·75	3·40
1904	4·22	3·14	3·30	2·70
1905	3·82	2·85	3·01	2·66
1906	5·15	4·04	4·27	4·05
1907	6·03	5·12	4·93	4·53
1908	4·76	3·52	3·01	2·31
1909	3·93	2·87	3·10	2·31
1910	4·35	3·54	3·72	3·18

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* From the *Stat. Jahrb. f. d. Deutsche Reich.*

TABLE V

OUTPUT OF PIG-IRON AND COAL.

Year.	*World.*		*German Empire.*	
	Pig-Iron (in 1,000 Tons).	*Coal (in Millions of Tons).*	*Pig-Iron (in 1,000 Tons).*	*Coal (in Millions of Tons).*
1865	9,100	188	988	29
1866	9,656	197	1,047	28
1867	10,062	203	1,114	31
1868	10,707	208	1,264	33
1869	11,950	218	1,413	34
1870	12,260	219	1,391	34
1871	12,852	237	1,564	38
1872	14,843	260	1,988	42
1873	15,125	280	2,241	46
1874	13,916	274	1,906	47
1875	14,119	283	2,029	48
1876	13,962	287	1,846	50
1877	14,193	294	1,933	48
1878	14,536	293	2,148	51
1879	14,411	312	2,227	53
1880	18,584	345	2,729	59
1881	19,819	365	2,914	62
1882	21,555	384	3,381	65
1883	21,756	410	3,470	70
1884	20,464	409	3,601	72
1885	19,842	407	3,687	74
1886	20,813	407	3,529	74
1887	22,820	434	4,024	76
1888	24,031	470	4,337	82
1889	25,877	485	4,525	85
1890	27,870	514	4,658	89
1891	26,171	532	4,641	94
1892	26,917	538	4,937	93
1893	25,263	528	4,986	95
1894	26,032	552	5,380	99
1895	29,369	583	5,465	104
1896	31,289	601	6,373	112
1897	33,464	631	6,881	120
1898	36,455	665	7,313	128
1899	40,874	727	8,143	136
1900	41,384	767	8,521	150
1901	41,140	789	7,880	153
1902	44,730	803	8,530	151
1903	46,820	878	10,018	162
1904	46,220	886	10,058	169
1905	54,790	914	10,875	174
1906	56,660	1,014	12,293	194
1907	61,300	1,117	12,875	206
1908	48,800	1,068	11,805	215
1909	60,660	1,110	12,645	217
1910	66,200	1,152	14,794	222

TABLE VI

GOODS TRAFFIC ON GERMAN RAILWAYS (IN MILLIONS OF TONS).*

Year.	*Capital Goods.*	*Other.*	*Year.*	*Capital Goods.*	*Other.*
1886 ..	23·9	92·2	1898 ..	57·6	179·1
1887 ..	27·6	97·2	1899 ..	63·2	188·7
1888 ..	31·0	106·6	1900 ..	65·3	203·6
1889 ..	34·6	114·7	1901 ..	59·5	203·9
1890 ..	34·7	119·7	1902 ..	63·8	203·9
1891 ..	35·2	127·1	1903 ..	72·4	218·7
1892 ..	35·8	124·8	1904 ..	75·2	225·1
1893 ..	36·3	132·2	1905 ..	80·0	241·0
1894 ..	39·2	138·1	1906 ..	91·0	257·9
1895 ..	40·8	143·9	1907 ..	94·4	269·6
1896 ..	48·1	157·1	1908 ..	88·8	275·0
1897 ..	52·3	168·5	1909 ..	90·5	279·9

* *Stat. Jahrb. f. d. D.R.* (as capital goods we take those classed 7, 11-20, 31*a*, *b*, 59).

TABLE VII

FACTORY WORKERS IN SWEDEN.*

Year.	*Capital-Producing Industries.*	*Other Industries.*	*Total.*
1896	92,414	109,879	202,293
1897	101,619	118,583	220,202
1898	109,733	135,987	245,720
1899	116,275	141,251	257,526
1900	119,597	145,882	265,479
1901	114,451	147,778	262,229
1902	113,438	149,806	263,244
1903	117,351	153,806	271,157
1904	119,064	158,789	277,853
1905	116,843	164,152	280,995
1906	124,678	171,130	295,808
1907	128,021	175,008	303,029
1908	121,082	174,310	295,392
1909	115,186	174,019	289,205

* From *Bidrag till Sveriges officiella Statistik D. Fabriker och Handtverk* (the following sections are counted as capital-producing industries: Table 6, 5*a*); Rubrik 1, 8*a*); Rub. 2, 3, 5, 13, 14, 10*a*); 11*a*, *b*); Rub. 1, *c*); Rub. 1, 2, 6, 7.

TABLE VIII

Individuals insured against Accident in the German Guilds (in Thousands).*

Year.			Capital-Producing Industries.	Other.	Total.
1888	..	..	1,865	2,455	4,321
1889	..	..	2,145	2,598	4,743
1890	..	..	2,214	2,712	4,927
1891	..	..	2,322	2,771	5,093
1892	..	..	2,275	2,803	5,078
1893	..	..	2,313	2,856	5,169
1894	..	..	2,324	2,920	5,244
1895	..	..	2,370	3,039	5,409
1896	..	..	2,553	3,182	5,735
1897	..	..	2,753	3,290	6,043
1898	..	..	2,918	3,399	6,317
1899	..	..	3,110	3,548	6,659
1900	..	..	3,214	3,715	6,929
1901	..	..	3,052	3,832	6,884
1902	..	..	3,032	4,068	7,100
1903	..	..	3,189	4,277	7,466
1904	..	..	3,365	4,484	7,849
1905	..	..	3,539	4,657	8,196
1906	..	..	3,772	4,854	8,626
1907	..	..	3,905	5,113	9,018
1908	..	..	3,719	5,199	8,918
1909	..	..	3,691	5,313	9,004

* From the *Stat. Jahrb. f. d. D.R.*, (unions in the capital-producing industries are those numbered 2-11, 17, 43-54, 64).

TABLE IX

VERAGE ANNUAL PRODUCTIVE CAPACITY OF THE GERMAN FURNACES.*

Year.	*Existing at End of Year.*	*Active.*	*Weeks Worked.*	*Average Annual Capacity per Furnace.*
1872	—	348	13,676	7,560
1873	—	379	15,276	7,627
1874	—	339	11,776	8,418
1875	—	289	10,904	9,678
1876	—	236	9,160	10,481
1877	—	212	9,219	10,902
1878	—	212	9,056	12,332
1879	—	210	8,952	12,934
1880	—	246	10,975	12,930
1881	—	251	11,362	13,336
1882	—	261	12,087	14,545
1883	318	258	11,760	15,342
1884	308	252	11,071	16,912
1885	298	229	10,758	17,824
1886	285	215	9,445	19,427
1887	271	212	10,011	20,902
1888	271	211	10,103	22,323
1889	264	213	10,436	22,545
1890	265	222	10,480	23,114
1891	270	218	10,322	23,380
1892	266	215	10,103	25,410
1893	263	204	9,747	26,600
1894	258	208	9,878	28,320
1895	263	212	9,929	28,610
1896	265	229	10,846	30,550
1897	273	244	11,661	30,680
1898	281	253	11,587	32,820
1899	285	263	12,806	33,060
1900	298	274	13,252	33,430
1901	309	263	11,517	35,580
1902	289	241	10,946	40,520
1903	293	254	12,546	41,520
1904	297	254	11,930	43,840
1905	308	277	12,914	43,790
1906	315	288	14,125	45,255
1907	324	303	14,780	45,298
1908	331	280	12,596	48,733
1909	334	279	12,811	51,320

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* *Stat. Jahrb. f. d. D.R.*

TABLE X

FREIGHTAGE AND SHIP-BUILDING IN ENGLAND.[*]

Year.	*Tonnage of Incoming Ships (Millions).*	*Tonnage of Ships Built (Tens of Thousands).*	*Year.*	*Tonnage of Incoming Ships (Millions).*	*Tonnage of Ships Built (Tens of Thousands).*
1854 ..	19	—	1882 ..	61	78
1855 ..	18	—	1883 ..	65	89
1856 ..	22	—	1884 ..	64	59
1857 ..	23	—	1885 ..	64	44
1858 ..	22	24	1886 ..	63	33
1859 ..	23	21	1887 ..	65	38
1860 ..	25	23	1888 ..	69	57
1861 ..	27	21	1889 ..	72	85
1862 ..	27	26	1890 ..	74	81
1863 ..	27	38	1891 ..	75	81
1864 ..	27	42	1892 ..	76	80
1865 ..	29	45	1893 ..	75	58
1866 ..	31	38	1894 ..	81	67
1867 ..	33	31	1895 ..	81	65
1868 ..	34	36	1896 ..	85	74
1869 ..	35	39	1897 ..	90	64
1870 ..	37	39	1898 ..	91	87
1871 ..	42	39	1899 ..	98	95
1872 ..	43	47	1900 ..	99	94
1873 ..	44	45	1901 ..	97	98
1874 ..	45	60	1902 ..	99	95
1875 ..	46	47	1903 ..	105	76
1876 ..	51	38	1904 ..	108	88
1877 ..	52	45	1905 ..	112	105
1878 ..	52	47	1906 ..	121	114
1879 ..	53	41	1907 ..	133	104
1880 ..	59	47	1908 ..	131	60
1881 ..	58	61			

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[*] *British and Foreign Trade and Industry* (1854–1908), Cd. 4954, London, 1909.

TABLE XI

INDEX-FIGURES OF WHOLESALE PRICES OF PIG-IRON, BRICKS, AND TIMBER (CUT) IN GREAT BRITAIN, 1871–1908.*

Year.	*Pig-Iron.*	*Bricks.*	*Timber (Cut).*
1871	72·1	91·7	159·1
1872	119·7	100·0	163·0
1873	148·0	116·7	176·6
1874	111·9	100·0	179·9
1875	86·3	91·7	157·1
1876	74·2	91·7	159·1
1877	68·2	91·7	155·2
1878	63·7	83·3	135·7
1879	61·3	70·0	118·2
1880	76·1	75·0	134·4
1881	65·8	70·0	135·7
1882	66·8	83·3	139·0
1883	61·8	75·0	134·4
1884	54·7	75·0	119·5
1885	51·3	75·0	116·2
1886	50·6	75·0	102·6
1887	54·9	75·0	96·8
1888	50·4	75·0	103·2
1889	59·5	75·0	114·9
1890	72·6	100·0	105·8
1891	62·4	91·7	97·4
1892	61·2	91·7	97·4
1893	55·7	83·3	90·9
1894	54·6	83·3	87·0
1895	56·9	83·3	88·3
1896	56·7	83·3	92·2
1897	57·3	83·3	93·5
1898	62·5	91·7	95·5
1899	82·6	100·0	94·2
1900	100·0	100·0	100·0
1901	74·6	91·7	94·8
1902	77·1	83·3	89·0
1903	75·1	83·3	90·9
1904	69·6	83·3	85·7
1905	75·0	81·1	87·7
1906	83·2	77·8	89·6
1907	88·2	79·4	92·2
1908	75·3	81·1	87·7

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* *British and Foreign Trade and Industry* (1854–1908). Cd. 4954, London, 1909.

TABLE XII

SAUERBECK INDEX-FIGURES OF MINERALS AND OTHER ARTICLES, DIVIDED BY THE FIGURES OF THE RELATIVE GOLD-SUPPLY.

Year.	*Minerals.*	*Other Articles.*	*Year.*	*Minerals.*	*Other Articles.*
1870 ..	76·3	83·5	1891 ..	80·6	74·6
1871 ..	80·3	84·6	1892 ..	75·9	71·9
1872 ..	109·1	89·1	1893 ..	73·3	72·9
1873 ..	122·9	92·0	1894 ..	68·4	67·6
1874 ..	100·6	86·4	1895 ..	67·1	67·0
1875 ..	89·4	83·7	1896 ..	68·7	65·5
1876 ..	80·4	84·6	1897 ..	71·2	66·3
1877 ..	75·4	85·7	1898 ..	75·8	67·7
1878 ..	66·9	81·2	1899 ..	97·9	68·1
1879 ..	66·6	77·4	1900 ..	115·9	73·7
1880 ..	72·6	82·5	1901 ..	94·9	71·4
1881 ..	71·4	80·2	1902 ..	87·8	71·7
1882 ..	74·6	80·0	1903 ..	87·3	71·3
1883 ..	72·7	79·7	1904 ..	86·1	71·9
1884 ..	65·9	74·8	1905 ..	91·4	72·8
1885 ..	64·9	71·6	1906 ..	105·1	75·3
1886 ..	66·2	68·9	1907 ..	110·1	76·7
1887 ..	70·0	68·6	1908 ..	90·5	71·5
1888 ..	79·6	70·4	1909 ..	87·0	72·7
1889 ..	77·8	74·1	1910 ..	88·8	75·8
1890 ..	83·9	73·1			

TABLE XIII

PIG-IRON OUTPUT AND MARKET RATE OF DISCOUNT IN THE NORTH AMERICAN UNION.*

Year.	*Pig-Iron Output (Millions of Tons.)*	*Market Rate at New York.*	*Year.*	*Pig-Iron Output (Millions of Tons).*	*Market Rate at New York.*
1870 ..	1,665	7·2	1891 ..	8,280	5·87
1871 ..	1,707	6·1	1892 ..	9,157	4·46
1872 ..	2,549	8·0	1893 ..	7,125	7·11
1873 ..	2,561	10·3	1894 ..	6,658	3·40
1874 ..	2,401	6·0	1895 ..	9,446	3·87
1875 ..	2,024	5·5	1896 ..	8,623	5·88
1876 ..	1,869	5·2	1897 ..	9,653	3·87
1877 ..	2,067	5·2	1898 ..	11,774	4·23
1878 ..	2,301	4·8	1899 ..	13,621	4·28
1879 ..	2,742	5·0	1900 ..	13,789	4·73
1880 ..	3,835	5·2	1901 ..	15,878	4·48
1881 ..	4,144	5·2	1902 ..	17,821	5·04
1882 ..	4,625	5·7	1903 ..	18,009	5·54
1883 ..	4,596	5·5	1904 ..	16,497	4·29
1884 ..	4,098	5·2	1905 ..	22,992	4·33
1885 ..	4,045	4·1	1906 ..	25,307	5·63
1886 ..	5,683	4·7	1907 ..	25,781	6·28
1887 ..	6,417	5·7	1908 ..	15,936	4·62
1888 ..	6,490	4·9	1909 ..	25,795	3·92
1889 ..	7,604	5·08	1910 ..	27,304	5·07
1890 ..	9,203	5·92			

* From Pohle, *Statistische Unterlagen.*

THIRD BOOK

MONEY

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CHAPTER IX

ANALYSIS OF THE MONETARY SYSTEM ON THE BASIS OF ITS EVOLUTION

§ 39. The Origin of the Monetary System.

THE origin of money is intimately connected with the development of exchange of goods, and exchange itself is a comparatively late outcome of economic evolution. Long before it had become the general custom to exchange goods, it was possible in various ways to obtain commodities from other economic groups. They might be stolen, for instance, or they might be more or less regularly secured, in the form of tax or tribute, by the exercise of some kind of authority. Moreover, the custom of giving presents and return-presents has been of direct significance in the evolution of exchange.* It is a very natural expectation that the return-present will bear some proportion to the present, and we may safely assume that this proportion was settled by custom, and generally recognised, at a very early stage of development. It was then possible to stipulate in advance that one should receive a specific object as return-gift, and thus the need to exchange goods might for a long time be met by this old custom of present and return-present. Wherever exchange developed into the normal economic procedure, it was, in all probability, at first, and for ages, conducted according to traditional standards, and these may have been set up by the priests or other authorities. Further, the exacting of tribute of various kinds probably led very early to a definite tariff-scheme of certain commodities which were accepted in payment. For it is clear that, as a rule, the various peoples or tribes, or other economic unities, would have to be allowed to pay tribute or taxes in the products which they were best able to supply.

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* We get a good idea of the frame of mind which is at the root of this custom from the ancient Scandinavian poem "Havamal" (in the earlier Edda). It runs:

> "Never did I find a man so generous
> Or so hospitable
> That he would not take what was offered him;
> Or with his treasures
> So lavish to his friends
> That hateful to him was the reward he received.
>
> . . . .
>
> With weapons and garments
> Do thou gladden thy friend,
> And the same will be done to thee.
> With gifts and return-gifts
> Friendship grows old."

For these reasons it was economically necessary to have tables determining the comparative values of different goods; and this need must have made itself felt in the earliest stages of the development of forms of exchange.

In fact, such tables are known to us, both from ancient inscriptions and from the primitive arrangements which we find surviving in our own days. Probably the custom was established at an early stage of settling the value of different commodities by reference to a common good, a "standard good." This might be done in two ways: either by making the standard commodity equal to so many units of the other commodities, or by taking a unit of each of the other commodities as equal to so many units of the standard good. However, this way of estimating the value of things by reference to a standard good is, in primitive conditions, only done with separate groups of commodities; and each of these groups has its own standard good. In the earlier stages of cultural evolution it is the general, and very natural, feeling that things of great value cannot be exchanged for others which are of considerably less value. In Africa, for instance, ivory can be exchanged only for certain commodities that are greatly esteemed, not for others which are of little value. This view retained its influence for a long time, even after the development of a monetary system, as is clearly seen in various rules and principles of mercantile politics.

Thus the early standards for estimating the value of things broke into a number of separate standards, and it was gradually felt that it was necessary to combine these partial standards in a comprehensive scale of values. This was done as soon as there were established definite ratios of value between the various standard commodities. There resulted a single scale for estimating values, which might be applied to all sorts of commodities. Frequently this scale consisted of a whole series of units, connected together by simple numerical relations to each other. Professor Ridgeway gives us a scale of this sort, with five different units, from Annam:

1 slave (male) = 6 or 7 buffaloes;
1 buffalo = 7 jars;
1 jar = 4 *muk;*
1 *muk* = 10 *mats.**

The meaning of the word *muk* seems to have been lost, and it is now merely a unit of value. The smallest unit, the *mat*, is an iron hoe which they use in agriculture. All other commodities are valued in terms of these five units, and sometimes, in order to express a precise value, several of the units are placed in succession; for instance, a good sword = 1 jar, 1 *muk*, and 3 *mats*. Naturally, the fact that there is such a scale for estimating values does not prove that the most valuable goods were exchanged for the cheapest. It is, however, a formal and single scale for estimating the value of all sorts of commodities.

The use of different units to express the value of cheap and of dear goods, respectively, has obstinately persisted through all the stages of the development of exchange. The division of our modern standards of value into marks and pfennigs, francs and centimes, or pounds, shillings, and pence, is due to this custom. The three units of English coinage are a direct inheritance from antiquity.

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* W. Ridgeway, *The Origin of Metallic Currency and Weight Standards* (Cambridge, 1892), pp. 23-4.

Each unit in a scale of this kind is bound to become an abstract unit of measurement. If, for instance, a value is expressed in stockfish, the number must clearly refer to fish of "average size and quality," or some other definite standard. A store of a hundred fishes does not necessarily mean a hundred fishes in the sense of the unit of value. This is still clearer when we consider what is by far the most important of all units of valuation—cattle. As a unit for estimating values "ox" inevitably assumes a special and purely abstract meaning. The real ox is valued in units of this kind like all other goods, and the figure expressing its value varies considerably; since even primitive peoples accurately distinguish the value of cattle according to age, etc. The abstract nature of the unit of reckoning is especially clear in cases where it has completely lost its original meaning. In the Hudson Bay region payment was for a long time made in "skins." Originally this meant a beaver-skin; but the unit came in the course of time to have a fixed value of two shillings while the real beaver-skin naturally went up in value.* Not infrequently the original meaning of the unit of reckoning was entirely lost, as we saw in a case given above.

The sum to which a commodity is valued in such an abstract unit is clearly a *price*. The unit is a unit of price, and the whole scale of measurement is a price-scale. Hence the estimate of price is from the start a process of reckoning in abstract units, and the abstract unit has always an independent existence, detached in a sense from the standard commodity.

Wherever a scale of measurement of the kind we have described has come into operation, it is obviously easier to express the value of goods numerically, and this must promote exchange. This development of barter must in turn bring about a wider application of the scale of measurement, and so strengthen its position in the mind of the community. Thus barter and the scale of measurement develop together; indeed, there has probably never existed anything like a developed barter trade without a scale of measurement of values.

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* W. S. Jevons, *Money* (London, 1899), p. 21.

When the value of things is estimated in terms of a common unit, they may be bartered by first fixing the prices of, let us say, two things that are to be exchanged, and then exchanging such quantities of these goods as have the same price; that is to say, such quantities as represent the same number of units of measurement. The transaction thus falls into two separate acts, and they have in a sense the character of sale and purchase. A buys the commodity *b* from B for the sum *p* ; at the same time B buys the commodity *a* from A for the same sum *p*. A pays the sum *p* by delivering his goods, and B has contracted to take these for the sum *p*. Here, however, the acts of buying and selling are still united. They have not the complete freedom which they will have when they can be accomplished quite independently of each other.

In unilateral transactions—taxes, fines, etc.—the scale of measurement serves to determine the extent of the obligation. But it is not at all necessary that payment should be made in the standard commodities of the scale. The debtor may be permitted to pay in certain other goods, priced by custom or otherwise, or, indeed, *in quo potuerit.**

Thus the scale of measurement may play an important part both in exchange and in unilateral transactions, without the standard goods themselves being introduced in their material shape.

When a people sells its products in a country which can supply in payment none of the commodities it needs, the country in question must give as counter-value some product for which there is a demand in a third country. This product is then taken as payment, and is exchanged in the third country—possibly for something which the first-mentioned people greatly values. In this case the people obtains the commodity it desires by an *indirect*

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* *Cf.* Bücher, *Die Entstehung der Volkswirtschaft* (1904), p. 131.

exchange; that is to say, by securing another commodity which can be used as a *medium* of *exchange.* This procedure is obviously the only possible way to get its object when the products of the first-mentioned people are not wanted in the third country, or the demand for them is so slight that the vendor would make no profit on a direct exchange. Thus indirect exchange must greatly extend the possibilities of exchange and therefore be very useful in promoting barter.

Although indirect exchange is of very great importance from this point of view, it would not be correct to regard it and the use of mediums of exchange as in themselves the beginning of a monetary system. For a real monetary system there must be a *general* medium of exchange; that is to say, a commodity that is used by *all* as a medium of exchange, and is therefore regularly accepted as counter-value for goods.

General mediums of exchange seem gradually to have come into use in connection with the development of calculation in prices. It is certain that the introduction of general mediums of exchange cannot have preceded the formation of price-scales, for the use of a general medium of exchange itself presupposes the use of this medium as a unit in such a scale, if no other scale has been previously determined. General mediums of exchange are not necessarily identical with the standard commodities which are at the base of the estimate of prices. The need of some standard commodity to serve as a unit in estimating prices and the need of a general medium of exchange are two different necessities of economic life, and they may be met in different ways. Indeed, the qualities demanded of a general medium of exchange are to some extent different from those required for a standard commodity. If a thing is to develop spontaneously into a general medium of exchange, it must of its own nature be an object in general demand. When the commodity has already become a general medium of exchange, and is generally recognised as such, it naturally acquires a new attraction, in virtue of its new property.

The essential qualities demanded of a general medium of exchange are three: it must be *easy to store*, *easy to transfer*, and *divisible*.

If a thing is taken in exchange merely to be used later for exchange with another commodity, it must, clearly, be one that is easily stored. It must be such that everyone can receive it and store it without any special difficulties or arrangements. This requirement has, of course, a different significance in different economic circumstances. Amongst the pastoral peoples, for instance, cattle can, as a rule, be received in any household, but that is by no means the case amongst more advanced peoples, with division of labour. General storableness implies also a certain durability, the highest form of which is indestructibility.

That a general medium of exchange must also be easy to carry about is obvious. This requirement further implies, in its higher stages, that large values may be represented by things of the least possible weight; and this can only be attained if the commodity that serves as medium is very rare.

Divisibility, in fine, is an essential requisite in a general medium of exchange, as, if it is to answer its purpose, it must be possible to deliver it in any quantity that is desired. Complete divisibility involves uniformity, which means that pieces of equal size may be treated as identical in value.

When we bear in mind the need of these qualities in a general medium of exchange, we see that commodities which were selected as standard goods for estimating prices on account of their high economic significance would not always be found suitable as general mediums of exchange; that other commodities would to some extent have to be used for this function. The most common and important of standard commodities amongst primitive peoples, cattle, is not suitable as a general medium of exchange at higher cultural levels, as we said, because it is not "storable." Neither does it meet the requirement of "divisibility"; and its "portability," especially oversea, must for a long time have been very restricted.

In these circumstances it is only natural that, as soon as the need of a general medium of exchange was acutely felt, it was not the chief units employed in estimating prices, but other commodities, preferably metals, and most particularly precious metals, that were introduced to meet the situation. From what we have said above, the special advantage of the precious metals as general instruments of exchange will be quite obvious. As, in addition, they are used for purposes of ornament, and therefore have that general attractiveness which alone, at low cultural levels, can raise a commodity to the rank of general medium of exchange, it is easy to understand why the precious metals have come to be preferred to all others as such mediums. Other metals, especially copper (bronze) and iron, came into use at the same time to represent smaller sums.

When other commodities than the standard goods for estimating prices are to be used as general mediums of exchange, they must, of course, be valued in terms of the current scale of price-units; they must have recognised prices everywhere. This requirement is, as a rule, easily met, in view of the great stability of prices in primitive economic groups. Probably also authoritative decisions as to what sort of commodities must be given in discharge of unilateral obligations have been of great importance in fixing the value of suitable mediums of exchange.

As soon as a general medium of exchange has its price fixed according to the current scale, it assumes the character of a *general medium of payment.* A general medium of payment makes it possible to conduct the sale of an object as an isolated transaction; the obligation which the buyer assumes, to take the object for a sum defined in price-units, may now be discharged directly, and there is no need to complete the transaction of selling by an act of buying to the same amount. The normal form of the transfer of goods is now the unilateral, the other side of the bargain consisting in *payment.* All unilateral obligations can now be met by payment in terms of the general medium of payment.

When the use of general mediums of payment is established, it is natural for the older price-units to lose their connection with the standard goods and gradually become purely abstract units for estimating values. The economic significance of these price-units is clearly determined by the general level of prices, and is therefore fixed in the same measure as prices generally are stabilised. But the valuation of the general mediums of payment may have a special influence on the value of the unit of reckoning in so far as this valuation is subject to the arbitrary decision of some ruler. When a definite "legal tender-value" is attached to a certain medium of payment—that is to say, when it is laid down that obligations to pay in the current price-units may be discharged in a certain ratio by aid of a certain medium of payment—this must, obviously, in time, have an influence upon all prices, and thus give a new material significance to the price-unit itself. Whenever a State reserves to itself the regulation of the currency, the economic significance of the price-units becomes in time completely dependent upon the value that it ascribed to one or other medium of payment.

The scale of prices and the general medium of payment together form the *monetary system.* Thus the monetary system has resulted from two natural requirements of trade by, probably, a very slow process of development. This development has, no doubt, kept pace in all its stages with the development of barter itself. In the very oldest documents in which there is question of trade we find a determination of prices, and general mediums of payment were undoubtedly in use wherever trade got beyond the elementary level. Even in later stages the development of barter was never in advance of that of the monetary system. When at last, in the nineteenth century, a proper economic system of exchange definitely displaced the older system of self-contained households the monetary system also attained its modern perfection.

This attempt to reconstruct analytically the main lines of the evolution of the monetary system is entirely confirmed by the picture which Professor Ridgeway gives us of the corresponding development in the ancient world. The distinguished scholar informs us that the ox was for thousands of years the chief unit for the settlement of prices in the whole of the Mediterranean region, from the Atlantic Ocean to Central Asia. There were, it is true, secondary units, such as the sheep; and possibly the slave was used as a higher unit, regarded as equal in value to three oxen. But at a quite early date other commodities, the metals, came into use as general instruments of exchange or payment. In the earliest stages the quantity of the metals was determined by measurement. They were drawn out in something like bars, and measured by a unit of length taken from the human body. Gold was used as an ornament, in the form of bracelets (often spiral), but in case of need it was also used as a medium of payment, the form making it easier to estimate the different amounts. In order to facilitate the use of them as mediums of payment, the metals were also worked up into pieces of a definite size, in the form of rings, nails, needles, etc. Scales came into existence owing to the necessity of estimating precisely quantities of the dearest of the metals, gold. The first weights were grains of wheat and other seeds, as is evidenced by the English unit of weight, the "grain," and the "carat" (in Greek *κεράτιον*, the seed of the carob) that is still used in weighing gold. It is a very remarkable fact that gold was always measured in a unit that corresponded to the value of an ox. This unit had a weight of about 130 grains troy (=8·4 grs.). Even before the invention of scales gold was probably used in pieces which represented the value of an ox. The system of weights has simply adapted itself to this tradition, and the first unit of weight was the piece of gold, which has been regarded in all time as the gold-unit, and stood for the value of an ox.

There can be no doubt that this quantity of gold was used as medium of payment in the much older scale of prices founded on the ox-unit. The custom of counting in " oxen " was long retained, and the ox-scale was converted into a purely abstract scale of reckoning, the original meaning of which was probably entirely lost, while real oxen were priced by it and paid for in gold. In these circumstances it is only natural that the quantity of gold which represented an ox went by the name of " an ox," and that the name was retained even when the piece of gold in question had taken the shape of a coin. The essential feature of the development is that a certain quantity of gold, which was considered to be equal in value to an ox, was generally recognised as a medium of payment with a fixed value. This currency-value was made legal as the power of the State developed. In the course of these changes the connection of the unit of reckoning with the living ox was lost.

Other metals also were used as mediums of payment in quantities which were adjusted to the earlier units of reckoning. At Rome, for instance, copper was used, 100 *as* representing the value of an ox, 10 *as* the value of a sheep.

The idea of a monetary system necessarily implies the existence of a scale of reckoning of prices and a medium of payment recognised in this scale. It might be disputed which of these elements of the monetary system is the more important. The scale of reckoning might claim precedence on the ground that it is possible to have an estimate of value in terms of a definite unit of reckoning, and this may serve as basis for an exchange of goods, although there is no general medium of exchange or payment; whereas the creation of the latter necessarily presupposes the general use of a unit of reckoning. However, both elements are actually indispensable to our existing monetary system, and it is impossible to determine their relative importance.

The theory of money has, as a rule, directed its attention mainly to the analysis of the nature of *money*.

But as, in doing so, money was chiefly regarded as a material commodity, the material instrument of payment received undue prominence. It has been asked what characteristic properties are required for a thing to be denominated money in this material sense. It has, however, gradually become clear that the idea of money must be defined, not by the properties of any particular thing, but by its essential functions. It follows from this conception that analysis must be directed immediately to the essential functions of money. The complex of institutions by means of which these functions are exercised must then be described as the monetary system. The question what is to be used as material money thus assumed only a secondary interest. It may be answered in a general way that any general medium of payment that is recognised as such is " money." But it is plain that the money-character of such money is emphasised in proportion as it is used exclusively as money or can be so used; in other words, the more the " money " is detached from the " commodity."

For theoretical economy our analysis of the monetary system is particularly important. Just as the fixing of prices is a primary need of every system of exchange, so any thorough treatment of the theory of the system of exchange must be based upon the assumption of a determination of prices. It has been shown in the first two books of this work that such a theory can be elaborated as a theory of the determination of prices without needing to pay particular attention to the part played by the mediums of payment of it. Analysis of the origin of the monetary system shows that this part is essentially distinct from the part played by the price-scale. It is therefore natural, in theoretical treatment, to make the part played by the mediums of payment, and particularly their significance for the price-scale, the subject of a special inquiry. This gives us the task of our Third Book.

§ 40. THE MINTING OF MONEY AND ITS SIGNIFICANCE.

Once the use of metals as media of payment has been established, it is bound to lead to the creation of *coinage*. This development is due to two important advances. On the one hand, at a very early stage, before the invention of the weighing scale, the metals were, in order to facilitate payment, divided into pieces of equal size, corresponding to the units of reckoning or parts thereof. On the other hand, the need was felt of indicating and guaranteeing the weight and quality of these pieces of metal by stamping them, so as to avoid a process of weighing and testing which is always troublesome, and is for the majority of men impossible.

Each of these advances is important enough in itself. But the conjunction of the two had a decisive significance: one may even say an epoch-making significance. It led to the appearance of *coinage*.

Technical improvements gradually made it possible to attain an increasing uniformity in the manufacture of the coins, so that variations between different coins could now be confined to a very small proportion of the whole. Stamping developed until the impression covered the whole surface of the coin; and this enables any man who receives the coins to tell whether a piece still has its original quantity of metal.

For practical purposes it is essential that all coins of the same nominal value can be taken in payment indifferently. This ideal of reciprocal equivalence in value, or "fungibility," was gradually realised in ways that we have described.

Especially in the earlier stages, however, the absolute equivalence of the individual coins as media of payment could only be secured by legislative enactment. The State early reserved to itself the minting of coins, and gave the coins a certain purchasing power in a definite scale of prices. This legal purchasing power attaches to all coins which are recognised as valid in the laws, indifferently, according to their nominal value. In actual payment, therefore, no attention need be paid to any differences between individual coins of the same nominal value. In cases where the coins are used as metal a distinction may be made between different coins according to their substantial content, but as long as they are simply coins they must be regarded as identical with each other.

This legal identity of coins is of far-reaching importance. As we saw, the scale of prices always reckons in units which are supposed to be identical. By minting a material medium of exchange is created of the same interchangeability as that of the unit of reckoning in the scale of prices.

The unit of coinage receives a name in accordance with either the old unit of reckoning or the weight of the metal (mark, pound, lira), or on some other ground. A very expressive name is the " crown," which emphasises the minting authority of the State. If the unit of coinage is thus called a crown, and this unit is also made the basis of the scale of prices, all prices in the country in question are reckoned in crowns. As it always happens with the unit of a scale of prices, the " crown " becomes a purely abstract and independent unit of reckoning, without any direct or necessary connection with its original concrete substratum. The connection between the scale of prices, or the reckoning in crowns, and the medium of payment is now represented by the legislative enactment that debts in crowns are discharged by means of the coin called the crown. The State, however, determines the quality of this coin. By this right to decide what is to serve as legal tender the State takes in hand the scale of prices, and it can considerably modify its material significance without destroying the formal identity.

Changes of this kind have taken place constantly in the course of time. As bad coinage is assumed to have the same value as good, there is a strong temptation to mint coins of less intrinsic value, and so make a profit. In these debasements of the coinage, which have for thousands of years been perpetrated by those in political authority, the identity of the price-scale could generally be maintained. Further, the State has at times substituted another metal for that which ought to be the basis of the price-scale without, even in this case, destroying the identity of the scale. We have an instance in the modern change from a silver standard to a gold standard. Indeed, the State can deprive the price-scale of any metallic basis, and make paper money legal tender, without sacrificing the legal identity of the price-scale.

In this development the price-scale appears, as always, as an abstract scale of reckoning, which is only more definitely fixed by the establishment of a medium of payment that shall have a settled purchasing power in it. When, in Book I., we dealt with the general problem of settling prices, we calculated all prices in a common abstract unit. It then appeared that prices in general were determined except for a multiplicative factor. This means that only the proportional figures of different prices can be determined by the settlement of prices in an abstract scale of reckoning. The fixing of prices in absolute sums presupposes that, apart from the intrinsic conditions of equilibrium of the process of determining prices, the prices are further subject to a condition which gives the prices a relation to money. This condition arises when a definite purchasing power in the scale of prices is imposed upon a certain medium of payment. It is, however, required of the medium of payment that there shall be a certain limit to the supply of it for the purposes of trade; that, in other words, the medium of payment shall be relatively scarce. When this requirement is fufilled, the determination of the purchasing power of the medium of payment clearly suffices to do away with the indefiniteness of the price-problem, as regards the absolute height of the prices, and in this sense to fix the scale of prices. Thus the economic significance of the unit of reckoning depends essentially upon the scarcity of the media of payment to which a definite purchasing power is attached in the price-scale.

When coins are recognised currency, the significance of the unit of reckoning is mainly determined by the limits of the supply which the trade-system in question has of these coins. Since the coins may be treated, not merely as instruments of payment, but also as metal, we distinguish between their *metal value* and their *nominal* or *face value*. The relation between the two is always of great importance in a monetary system of this character, and therefore the factors which determine this relation deserve particular attention. The relation obviously settles in what form the coins are to be used. The metal value cannot rise above the face value, as the coins would in that case be melted down and treated as metal; though where this is effectively prohibited, the face value may fall below the metal value. On the other hand, the face value may in certain circumstances exceed the bullion value, because the State, as the minting authority, can impose restrictions on minting.

Since the price of the coins is formally fixed by their legally established purchasing power in the scale of prices, their value obviously cannot be expressed in this scale as a price. However, all that we are concerned with here is that the ratio of face value to metal value has a definite significance; it is clearly determined by the ratio of the quantity of the metal offered on the market for the coin to the quantity of the same metal contained in the coin. Inversely, the ratio of bullion value and face value may be defined as the price of the metal in the current price-unit.

If we would now proceed to assign the general factors which determine the face value, we must, of course, assume that the coin is not convertible into another coin and thus acquires its value from that other. For the sake of formal simplicity we assume also that the coin represents the unit of price.

We have then to distinguish three different cases:

1. Let us suppose that the circulation consists of a single medium of payment of a completely homogeneous quality. If there is a certain scarcity of this medium, its value may possibly rise above its material value. But

when the medium is available in sufficient quantity, its value must fall to the level of its material value. A surplus of coins, which is not called for in actual trade, can clearly only be of value as metal. On this supposition, however, the currency-value must be equal to the metal value. For the currency value to rise above the metal value there must be a sufficient scarcity of the media of payment: a scarcity that compels the demand to offer more then the mere metal value of the coins, if it is to come into possession of the media of payment in question. That this scarcity of media of payment may occur, and that media of payment may in consequence acquire a higher than their material value, has often been shown by experience.

2. Let us suppose that there are two media of payment, A and B, each of which is in itself of a thoroughly homogeneous quality, and both have the same legal currency value attached to them. Let us assume that of the two A has the greater material value. We must then distinguish two principal contingencies. Either there is a sufficiency of medium B or there is not. In the first case the currency value is determined by the material value of B. A has then a higher metal value than currency value, and must therefore be treated as metal. The more valuable coin is in the assumed circumstances displaced by the less valuable, and it disappears from the circulation. This result corresponds to what is called Gresham's Law, which is popularly, but not quite accurately, expressed in the phrase: "Bad money drives out good."

In the other principal case, that there is a sufficient scarcity of B, the currency value may be above the metal value of B. The value of the price-unit may then either fall short of the metal value of A, or be equal to the metal value of A, or rise above it. The last-mentioned contingency will obviously arise when A and B together represent a supply of media of payment of insufficient stringency.

3. Let us suppose that there are media of payment

of varying quality and in sufficiently large quantities, and that every quality is represented in these media of payment, from the worst to the best grade. In these circumstances the value of the price-unit is clearly determined by the metal value of the best of the media of payment which must still be used as such in order to meet the demands of trade. The coins of higher metal value will be melted down and withdrawn from circulation.

We thus see that the currency value is regulated by the principle of scarcity and the differential principle. In the latter case the currency value is determined by the dearest coins that have to be taken into consideration. The three principles we have expounded afford a good introduction as a basis for deciding various practical questions in regard to the monetary system.

The creation of media of payment with definite legal purchasing power, and with a scarcity regulated in one or other fashion, gives the price-scale of a country its fixed significance, on the lines we have stated. When we wish to express this scale of prices in conjunction with the entire official regulation of the media of payment that are current in it, we speak of a country's *standard.*

By minting we create *money*, which as such is essentially only money, and from which the metal is definitely distinguished as a *good* or *commodity.* The coins may, of course, be melted down and be treated as metal, but they then cease to be coins. They may also in some cases be used in the form of coins as a commodity, as the not infrequent use of coins as ornaments in certain lands (India) proves. The metal itself can, however, only be converted into coin by minting, for which the State can impose what conditions it pleases. When the State makes minting as easy as possible, the boundary is soon passed in this direction. Pure money, detached from any connection with any kind of material good, is only found in the form of paper notes which are recognised as legal tender.

§ 41. THE PROBLEMS OF THE CIRCULATION OF COINAGE.

The invention of minting was a quite extraordinary step in advance in the process of payment. This progress has undoubtedly had a considerable influence on the development of trade. In the first place, however, the use of minted coins instead of uncoined metal has great disadvantages, and it was only after thousands of years of unfortunate experiences and fruitless efforts that these were overcome.

The possibility of minting coins of inferior value—that is to say, with a less amount of metal in them than they had originally—without altering their nominal value has, taken in conjunction with the progressive wearing-out of coins, led in every country to constant depreciations of the coinage. The attempts that were made here and there to check this degradation of the coinage failed, because the problem involved was not rightly understood; and, indeed, the conditions for the correct treatment of the problem did not yet exist. It is only in modern times that we have succeeded in finding a satisfactory solution of the problem of maintaining unchanged the metallic content of money, which we may call the "problem of the invariability of money."

In the second place, it was not possible in earlier ages to bring together, in a single system, the coins minted from the same metal in different denominations. It is in the very nature of coins that, if they are to meet the needs of trade, they must be minted in different denominations, and these must have certain simple ratios to each other. These unequal coins of the same money would, however, in the course of time be depreciated in different degrees, so that the ratios of value between them would be altered, and would thus become variable. In this way the originally single money fell into a number of independent "varieties." This disadvantage also was clearly connected with the transition to coined money, because, when unminted metal is used, a hundredth part of a certain weight of metal always remains a hundredth part. The disintegration of the money naturally brought with it a disintegration of the scale of prices into different and independent scales, between which no fixed ratio could be maintained. Here again the efforts to improve the situation were for a long time fruitless.

A similar difficulty is common to the use of coined money and of unminted metal. The difficulty is that different metals are used simultaneously as media of payment, and, in view of the need of representing the most diverse sums of money, must be so used. The coins which are made from different metals must obviously, if they are to be combined in a single monetary system, have a fixed ratio to each other. But if the metals themselves do not provide this, the fixed ratio of value between the coins cannot, as experience has shown, be maintained without special regulations: coins made of different metals cannot be brought together in a single monetary system.

These two difficulties have only been overcome in modern times by solving the great problem which we may call the "problem of the single standard." This problem has, as will be clear from what we have said, two aspects, according as we take into consideration one coined metal or several.

Progress in the sphere of the coinage system was very greatly impeded in earlier times by the political conditions. On account of the subdivision of the political organisation there were a large number of minting authorities, each of which made its own coins and allowed them to fall into different varieties; sometimes, in fact, put coins of different types in circulation. The authority of the minting powers was not as a rule strong enough to exclude foreign coins from circulating in their own countries. The consequence was that the circulation everywhere consisted of a miscellaneous mixture of all sorts of money with no connection whatever with each other. In such circumstances, naturally, no single scale of prices with media of payment exclusively recognised in it can be maintained. There can then, as a rule, be no especial currency value; the coins must generally, at least in trade on a large scale, be valued according to their metallic content. We had to wait for the development of the modern territorial State, which can maintain a monopoly of minting within its own frontiers and exclude foreign coins from the circulation, to provide a basis for a coinage-policy in accordance with rational principles.

Such a policy demands that the State shall recognise its important task in the sphere of the monetary system and shall be willing, when necessary, to make sacrifices for this. An idea of this kind was more or less foreign to the older State, which generally regarded the minting system mainly as a source of profit. Progress in the sphere of the monetary system is, therefore, possibly due in the first place to the general development of political life.

We have, however, to take into account also the improvement in the minting industry, which has made it possible to attain an increasing uniformity in the coins produced and has at the same time reduced the working cost. Finally, the improvement, the more scientific character, of our grasp of the nature of the monetary problem has, naturally, been of considerable importance.

Passing now to the solution of the various problems of circulation, we have in the first place to notice, in regard to the *problem of the invariability of money*, that the constant depreciations of the coinage in earlier times were due, not merely to the greed of the minting powers, but also to objective conditions which those powers could not control. The difficulties which occur in this respect are of three different kinds: they arise partly from the high cost of minting, partly from the lack of uniformity in the coins made, and partly from the fact that coins wear out.

The great expense of minting means that a proportionate cost is naturally added to the value of the metallic content of the coins. As the currency value cannot be raised above the metal value, it must gradually fall with this. The next large issue from the mint leads similarly to a gradual fall of the currency value, and so on. This difficulty has now been very much lessened, as the cost of minting has been reduced to a minimum by the use of modern machinery.

Lack of uniformity in minting, which also was a result of the imperfect industrial equipment of earlier times, has contributed to the depreciation of the coinage by causing people to select the best coins and use them as metal. This could happen in accordance with our third principle, stated in an earlier section, whenever the supply of coinage exceeded the intrinsic demand for media of payment. Selection of this kind, which would naturally occur mostly in payments abroad, must clearly lead to a depreciation of the average content. This mischief also has become much less important owing to technical improvements in minting, which enable us to manufacture coins with a high degree of homogeneity.

The third cause of the constant depreciation of coinage is the wearing-out of the coins. This was much worse in the days of imperfect technique than it is now; most particularly when we consider how much easier it then was to extract metal from the coins by filing or boring them. When the coins had suffered much in this way in the course of time, and the currency value had accordingly fallen to the metal value of the best coins in actual circulation, new coins of full weight could not be issued together with this depreciated coinage without being withdrawn from trade and used as metal. There was then no other resource but to recognise as a fact at each new issue the depreciation of value of the price-unit due to wear, and regulate the metallic content of the new coins accordingly. In this way the progressive wearing-out was bound to lead to an indefinite depreciation of the coinage.

The means by which the modern State has succeeded in effectually preventing this steady depreciation of the coinage is to annul the legal purchasing power of those coins which have sunk below the *mint allowance*.

Accurate minting of the coins according to their legally defined metallic content, the fixing of a strict limit of wear below which the coin loses its quality as legal tender, and the actual withdrawal of coins that have fallen below the mint allowance, are the means which enable us to maintain the coins at their due metallic content, and so give money as far as possible an invariable ratio of value to the metal.

When a circulation of coinage of full value has been secured in this way, the currency value can only fall below the metal value if the use of the coins as metal is prevented; if, especially, it is forbidden to melt them down. Hence the " free right to melt " is a necessary guarantee for maintaining the currency value on a par with the metal.

The theoretical possibility of a rise of the currency value above that of the metal, as a consequence of insufficent coinage, was of no practical importance under the earlier minting policy, which generally aimed at making as much coinage as possible. The right of private persons to have the principal coins made for their own use in the public mint in any quantity, if they provided the metal and paid a certain sum (Seigniorage) in addition, which is now generally recognised and known as " the right of free coinage," effectively prevents any rise of the face value of the chief coins above their metal value: at all events, to an extent exceeding the cost of minting. Where, as in England, the coinage charge is no longer made, and free coinage is thus gratuitous, the conversion of metals into coins means at the most a slight loss of interest. The fluctuation of the currency value has then a strict upper limit.

Thus free melting and free coinage, completed by the right of free export and import of the coinage metal, are, in a full-value circulation, the chief guarantees of the maintenance of a fixed metal par of the unit of reckoning.

Let us now turn to the problem of the single standard, and first let us consider the case in which only one coinage-metal is to be taken into account.

The three factors which have contributed to the progressive depreciation of the coinage are especially active in the case of the smaller coins. As the cost of minting is about the same for different coins, it must be, relatively, much higher for the small coins than for the large. Hence the small coins were habitually minted much more under face value than the large coins. The lack of uniformity in minting is also relatively greater in the case of the smaller coins. And the same applies to deterioration from use as the smaller coins circulate much more than the larger.

Hence the continuous depreciation of the metallic content of the coins owing to these three factors was bound to be all the greater in the case of the smaller coins. As the coins, which are minted in various nominal values from the same metal, lost their metallic content in different degrees in the course of time, it is clear that a fixed ratio of value between them could not be maintained. The original connection of the various coins in what was at first a single monetary system was bound to be broken in those circumstances, and the monetary system as such destroyed.

To counteract these influences and find some means of maintaining the unity of the monetary system has been in all times one of the great problems of monetary policy. It was a question of finding a means by which the smaller coins, which it was not possible to mint at full metal value or keep at that value, might yet be kept at their full nominal value. This was possible by putting sufficient restrictions on the minting of small coins; and the idea led to the reservation to the State of this minting of small coins and restricting the production to quantities that did not go beyond the needs of trade.

Where regulation of this kind is strict enough, a time easily comes when the currency allowed is too small, and the scarcity of small coins is seriously felt by trade. There can only be a proper adjustment to the varying requirements of business if it is permitted to pay surplus quantities of small coins into central pay-offices, whilst at the same time fully satisfying demand. In Germany certain offices of the Reichsbank are directed to give gold for silver, nickel, and copper. As long as such conversion is effectually carried out, business can scarcely ever be burdened with too large a quantity of small coins. When under these conditions small coins are minted in sufficient quantities and put at the disposal of trade, the amount of small coins in actual circulation will always be adjusted to the needs of business.

The redemption of small coins that are under value is, therefore, the immediate condition of maintaining the equality of these in value with the chief coins. A money that only keeps its value because the State pledges itself to redeem it by money of full value clearly has the character of credit money. The value of such money will in the last resort always depend upon the capacity and willingness of the State to carry out its undertaking to redeem.

Currency legislation has concluded from this that small coins which are thus under value must be legal tender only within certain limits. Coins below value which can be exchanged for higher coins are called *token coins.* On the other hand, the chief coins, which are unrestricted legal tender, are called *current coins.* As long as the State effectively redeems any surplus token money, the restriction of the legal purchasing power of the token coins means only that the payee is in a position to refuse inconvenient media of payment.

Let us, in fine, consider the problem of the single standard in the case where coins of two different metals circulate together.

The relative value of gold and silver has been subject to considerable fluctuations in the course of the last few centuries. On the whole there has been since the beginning of the sixteenth century a steady rise of this ratio, from about eleven at the beginning of the sixteenth century to about fifteen and a half in the first three-quarters of the nineteenth century, and about thirty-four at the close of the century. This rise was, however, not continuous. At certain times, as in the middle of the eighteenth century and in the fifties of the nineteenth, the ratio of gold and silver fell a little.

These variations in the relative value of the two precious metals were bound to involve similar variations in the relative value of gold and silver coins. The value of both the gold and the silver coins could on the whole, as long as minting was not subject to any special restrictions, as we saw, only be determined by the value of the metal in the coins. Hence, when the relative value of the metals changed, it was not possible to maintain the relative value of the gold and silver coins unchanged. Gold money and silver money are thus seen to be two different monetary systems, and the corresponding scales of prices two different standards.

The disadvantages in practice of this double system, which involves constant changes from one money to the other as the exchange varies, are obvious. It is, therefore, not surprising that great efforts were made to put an end to this state of things. First it was attempted to fix by law the ratio of gold and silver money. In this way, at all events, a single monetary system was sometimes attained. In such a system both gold and silver money are legal tender, in the ratio laid down by the law. Where there is free coinage of both metals, with this system, the country is said to have a *double standard.*

But, in accordance with the second principle, which we stated on an earlier page (§ 40) a money-system of this kind has no stability. For as soon as the relative value of gold and silver changes in the open market, either the gold or the silver money will be treated as metal and disappear from circulation. The free coinage right is, naturally, exercised in such fashion that the metal which has fallen in value is sent to the mint. As a result of the unrestricted minting of this metal the value of the unit of reckoning in the price-scale is defined by the value of the quantity of the said metal corresponding to this unit. Thus the metal which has, relatively, risen in value will be worth more as metal than as money.

It therefore disappears from circulation, driven out and replaced by the other metal.

It is conceivable that the legal fixing of the relative value of gold and silver money may have a certain influence on the relative value of gold and silver on the open market. For the dual standard affords a great monetary opportunity to the metal which falls in value, and consequently the demand for the metal increases, and this counteracts the fall in value. The amount of this counteracting influence clearly depends upon the importance of the country which has a double standard, and also, in a more general way, upon the ratio of the monetary to the industrial demand for the metal in question. We have nothing to do with these questions here. In this respect it is enough to say that, if the relative value of gold and silver changes on the open market, the double standard loses one of its two kinds of money.

It is easy to see that the loss of gold or silver money involves disadvantages which may, in serious cases, become quite intolerable. For business on a large scale it is inconvenient to have to go without gold money, once money of that kind has come into use. Still more inconvenient, perhaps, is the loss of silver money, which can scarcely be replaced for small payments. It is therefore only natural that great efforts were made to get beyond the stage of the double standard.

The solution of the problem to which the historical development has led is to mint only gold coins as the leading coins with unlimited currency and freedom of coinage, and to reduce silver coins to the status of "token coins" and reserve to the State the right of minting them. These token coins must be minted below value to such an extent that there will be no fear of their being withdrawn from circulation when the price of silver goes up. Currency legislation was content with a few per cent. below the intrinsic value. This rather narrow margin was, however, much enlarged afterwards by the heavy fall in price which silver has experienced since the seventies. The metal value of our silver coins is now, as a rule, not half the nominal value.

A single standard, under which only gold coins have unlimited legal currency and there is a free coinage right for gold, is known as a *gold standard.* The name must not be taken to mean that gold is the price-unit of the standard. Germany has a mark standard, England a sterling standard. The unit of reckoning is here the pound; prices are fixed, and payments made, in pounds. The pound standard, which is in itself only an abstract scale of reckoning, is more definitely fixed by the fact that so many sovereigns are minted from so much standard gold, and these gold coins have then an unlimited legal currency. It is the fact of the pound standard being more closely defined by this connection with the metal gold that we mean to express when we call it a gold standard.

The relation between the pound standard and the gold can be best expressed by saying that the price of an ounce of gold is fixed in the pound scale. The price of standard gold is, normally, £3 17s. 10½d. an ounce. But it is not absolutely fixed; it is only fixed within certain rather narrow limits. The rule laid down for the minting of gold coins cannot be carried out with perfect exactness. There is, therefore, a margin of error in the minting.

Anyone who wants to take the gold from the gold coins in circulation must count upon finding a certain average short value in them. This may be from 2 to 3 pro mille. Hence the upper limit of the price of gold is about 2 to 3 pro mille above the normal price. The lower limit is determined by the cost of minting. The normal price of standard gold ($\frac{11}{12}$ purity) is, as we said, £3 17s. 10½d. per ounce in England. The lower limit of the price is £3 17s. 9d., at which the Bank of England is obliged to take gold at any time. The upper limit should be put, in normal conditions, at about £3 18s. 0d.; though higher prices are paid occasionally. These limits represent variations from the normal price of about 1½ per 1,000, upward and downward.

An ideal gold standard would require an absolutely fixed price of gold. Every variation from the normal price must clearly be regarded as an imperfection of the gold standard. A variation upward is equivalent to an imperfection of the coins in circulation: a downward movement is equivalent to a rise of the minting charge. Every restriction of these fluctuations means an advance in the direction of a consistently realised gold standard.

The possibility of variations in the price of gold is theoretically important in so far as it shows that the price-scale has an independent existence even under a gold standard; that the unit of reckoning even here is a purely abstract unit, not a certain weight of gold. The primary in the English standard is the reckoning in pounds. All prices are fixed on this standard, and all debts discharged according to it. The unit of reckoning, the pound, is an independent magnitude. The settlement of prices in this unit is only restricted by the fact that it must not cause the price of gold to go above or below certain limits. The fluctuations of the price of gold under a gold standard are important also from the practical point of view, as we shall see in studying international payments (§ 60).

The gold standard was introduced in England at the beginning of the nineteenth century, and since the seventies it has been generally adopted, first in the countries of Western Europe, and then all over the world. In certain countries, however, the earlier position of silver money as unlimited legal tender has not been entirely abandoned. In France, for instance, silver five-franc pieces are still legal tender with full purchasing power. Although this silver is not convertible, it in the main asserts its parity with gold money; though in payments to foreign countries small premiums must be paid, as a rule, for gold money. That this parity should be possible is due to the scarcity of silver money, which is far from sufficient to cover the needs of business. But as gold money must always be in demand, the currency value is always regulated by the metal value of the dearer coins (compare our second principle on the circulation of money). A gold standard with the retention of an inconvertible silver money at full purchasing power is known as a *limping* standard.

The considerable fall in price which silver has experienced since the seventies in consequence of the greatly increased production of that metal, and the comparative restriction of its monetary use owing to the setting up of the gold standard, led to certain efforts to "rehabilitate" silver on the part of the interests which suffered by the fall. These efforts had the co-operation of people who saw in the increasing scarcity of gold and the general fall in prices which this undoubtedly in part occasioned a proof of the inadequacy of gold as the sole standard metal. These efforts culminated in a demand for the restoration of the double standard on an international foundation. This broader basis of the double standard would, they said, secure so great a monetary use for whichever of the two metals was in less demand at the time on the open market that it would be possible to avoid material fluctuations in the relative value of gold and silver.

This program of the international double standard is called *Bimetallism.* Bimetallism is an attempt to solve the problem of the single standard on the basis of two standard metals. The possibility of such a solution is to a great extent a political question that cannot be discussed here. There is no doubt that a very considerable stabilisation of the relative value of gold and silver would be attained if the whole world could really agree upon a bimetallic system. Whether this stabilisation would be sufficient to keep the two metals constantly in circulation together is an open question. It must therefore remain uncertain how far bimetallism can be regarded as a practically satisfactory solution of the single-standard problem.

It is certain that bimetallism has, under pressure of accidental circumstances, introduced into the standard question an element which is, strictly speaking, foreign to the problem. Our general treatment of the problem of the formation of prices showed that prices, as a whole, are determined but for a multiplicative factor. It follows that a *single* price can be fixed in any way. A new condition *must* enter before the problem of the formation of prices is fully settled. This condition, which means the fixing of the scale of prices, may assume various forms, one of which is the settling of the price of a particular commodity. This method is followed by the gold standard, and also by the silver standard. But the double standard means an attempt to fix two prices—that is to say, first, the absolute price of one commodity; secondly, the relative prices of two different commodities. The latter function, the fixing of the relative prices of two commodities, is clearly quite outside the province of the monetary system and must, if it is mixed up with the question of standard, complicate that question considerably and obscure its essential features.

The gold standard has completed the development of the monetary system in so far as we have reached a solution of the money-problem by which we have completely removed the disadvantages which the use of coined metal instead of raw metal had at first, and also the disadvantages of an unstable relative value of the two precious metals. We have succeeded in attaining an "invariability of money" and a "unity of standard." We have, however, still to inquire whether the connecting of the price-scale with the metal gold can guarantee a sufficient steadiness in the settlement of prices. It is conceivable that gold, apart from the formal assignment of its price in the gold standard, is subject to considerable fluctuations in value in comparison with other commodities, and this would naturally lead, under a gold standard, to corresponding fluctuations in the prices of the commodities. We cannot state this question very precisely here, but we will make a thorough study of it in the eleventh chapter. But as we have already pointed out the scarcity of gold at the end of the nineteenth century brought about a general fall of prices under the gold standard. Bimetallism would meet this fall of prices by abandoning the gold standard and creating a standard more amply provided with media of payment. In the twentieth century the greatly increased production of gold caused prices under the gold standard to rise once more. In this way the need to which bimetallism drew attention was pushed aside, at least for a time. The supply of gold was quite sufficient before the War to enable the world to keep a gold standard and gold circulation without any pressure on prices, indeed with rising prices. If a time comes when this is no longer possible, or if, on the other hand, too much gold were to come upon the market, we shall find ourselves confronting a question of currency-standard which is of too general and far-reaching an import for us to find the answer to it in a reversion to bimetallic ideas.

§ 42. FREE STANDARDS.

The metallic standard, which fixes the price-scale by fixing the price of a metal, is not the only solution of the problem of the stabilisation of the price-scale. Experience has already shown in a number of cases that a certain stabilisation of the price-scale can be secured without binding it to any metal or any kind of commodity.

The fixing of the price-scale is, as we have seen, accomplished by assigning some medium of payment that shall have unlimited legal purchasing power in the price-scale. It is clear that a necessary condition of this stabilisation of prices is that there shall be certain limits to the amount of this medium of payment. If it could be produced in any quantity without difficulty, any price whatever might be offered, and the stability of prices would cease.

When the currency is a freely mintable coinage, its scarcity is guaranteed by the scarcity of the coinage-metal. As this is used also for other purposes, the scarcity of the medium of payment is, it is true, secondary, but it is, at all events, due to objective conditions.

But when the State monopolises the production of the currency, it can restrict this currency to whatever amount it desires and so regulate the fixing of prices. The requisite stabilisation of the price-scale is in this case secured by a direct quantitative limitation of the medium of payment. A standard that rests upon this basis, and is therefore not bound up with a metal, is called a *free standard.*

India had for some time a free standard after the suspension of the free coinage of silver in 1893. The value of the rupee rose above its silver value, and it was entirely due to the scarcity of the Indian currency. At the same time, however, the Indian mints were directed to give fifteen rupees for English sovereigns, when desired; in other words, to sell rupees at a price of 1s. 4d. This fixed an upper limit for the Indian currency value. But the decision had at first no practical importance, as the rupee-exchange in the next few years remained far below 1s. 4d. Hence the rupee standard was a free standard with a restriction of the movement of the currency value both ways. Downwards the silver value of the rupee represented the limit of its value: upwards, it was the gold value of 1s. 4d.

There are, moreover, standards which have no connection whatever with a metal. These are the *paper standards.* A paper standard generally originates by declaring banknotes which are not convertible into gold to be legal tender, and thus giving them forced currency. When paper money is issued in sufficient quantities, it will necessarily supersede all metallic money, as it has no material value. The scale of prices is then settled by the paper money alone; the value of the unit of reckoning depends entirely upon the scarcity of the paper currency.

When paper money is issued in unlimited quantities, the unit of reckoning must fall indefinitely in value, and prices must rise indefinitely. The paper economy is then bound to end in a catastrophe. We have earlier instances in the issue of notes by Law's Bank in France which issued notes to the enormous extent of nearly three thousand million *livres*, but failed in the great crash of 1720. And there was an even larger, and equally fatal, issue of *assignats* during the French Revolution.

In recent times there has often been a paper standard with definite limitation of the paper money. In such cases the paper money has kept up to a certain value, though it showed some fluctuations as compared with metallic standards. The object in view in the regulation of the paper money was, as a rule, the resumption of cash payments at a certain rate, and therefore an eventual return to a metal standard on the basis of the original metal or a transition to a new metal standard (gold instead of silver). In the meantime, however, the paper standard was essentially determined by the scarcity of the paper currency relatively to the demand for it; though the hope of passing presently to a metal standard may have influenced the value of the paper money to a certain extent.

During the period of the Napoleonic wars the Bank of England could not redeem its notes in gold after 1797. But as the notes had forced circulation, and were therefore legal tender, they displaced gold money. England had, therefore, a paper standard, the unit of reckoning of which, the pound sterling, had an independent value, determined only by the amount of currency in circulation —that is to say, bank-notes. Gold was a commodity, and its price was fixed in pounds sterling like those of other commodities. Here the independent reality of the price-scale is very clearly seen. At the close of the War the pound sterling was gradually brought on a par with the sovereign by severe restriction of the issue of notes, and thus the gold standard was re-introduced.

There are in recent times numerous instances of deliberately regulated paper standards. The paper standard, quite disconnected from metal currency, ought, theoretically, to be regarded as the simplest standard. The various standards differ in the way in which the scarcity of the currency is brought about. In the case of a purely paper standard the scarcity of the currency is due to two factors: on the one hand to the quantity of the paper money and, on the other, to the demand for media of payment within the economic system in question. In the case of a metal standard the matter is much more complicated. The amount of the existing currency is in this case not a given quantity in the problem, but is, by means of the free coinage right, bound up with the world-supply of the metal, which in turn is to some extent dependent upon the cost of production. As demand we have to consider, not only the monetary demand of the national economy in question, but also that of other national economies, and indeed the industrial demand for the metal throughout the world.

Hence for the elucidation of the connection between the value of the standard unit and scarcity of media of payment the pure paper standard is a phenomenon of the greatest interest.

CHAPTER X

BANK CURRENCY

§ 43. The Concentration of Cash in Banks.

MONEY is taken as a general medium of exchange for the purpose of further exchange. This second exchange may take place within a longer or shorter time. When the money is to be used again as a medium of payment cannot, as a rule, be settled in advance. In the meantime the store of money of the community forms its *cash*. In general every economy that is not extremely poor has at all times a larger or smaller fund of cash. The total amount of the cash within the national economy at a given moment represents the *money-requirements* of the national economy in question at that moment. The extent of these requirements depends upon the habits of the nation and the organisation of the monetary system.

At primitive economic levels the money is stored, until it has been decided what to do with it, either as such or as metal (in the form of ornaments). If the money is not required for current consumption, this storing of it assumes the character of a treasury-hoard, or " thesaurisation." Hoarded means of this description may in case of need—a bad harvest, for instance, as happens periodically in India—be brought out for consumption, or be used for some special purpose; as in Lord Cromer's story of an Egyptian who had bought an estate for £25,000, and half an hour afterwards appeared with a string of asses carrying the money, which he had dug up out of his garden.*

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* *Annual Report of the Director of the Mint*, 1911 (Washington, 1912), p. 55.

In modern conditions even people who engage upon no undertakings of their own find ample opportunities for safe and profitable investment, while leaving open the possibility of re-converting their capital into money whenever unforeseen circumstances make this necessary. The result is that everyone invests the money for which he has no particular use in the near future. It is clear that this materially reduces the money-requirements of the community, relatively considered. The cash now consists mainly only of those means which are wanted for payments in the immediate future, either for investment or consumption on the part of the individual or in the current management of a business.

The course of development, however, shows a progressive diminution even of these money-requirements relatively to the sum total of payments. There is a constantly increasing endeavour to find some use for the stores of cash, which represent capital, wherever it is possible. This effort takes the form of a restricted use of money on the part of the individual, a progressive diminution of the money-requirements of the national economy. We may distinguish four stages in this development.

The *first stage* is the concentration of the cash of individual households in a bank. The individual entrusts his cash to the bank on the understanding that he can get money from the bank when he requires it. This concentration of itself means a considerable saving of cash. For, although from the nature of the transaction the money is withdrawable at sight, the bank does not need so large a sum as would correspond to the total of all the private funds entrusted to it. The various depositors will not all demand their money back at the same time. One has a payment to make to-day, another to-morrow. It will be some time before a sum equal to the whole of the deposits is paid back. In the meantime the bank will, in normal conditions, have received new money. If the number of the depositors is large, the payments and withdrawals will for the most part be about equal every day. The bank then needs only cash enough to meet a slight excess of withdrawals occasionally. The more evenly the payments and withdrawals are distributed, the smaller the average amount of the bank's cash relatively to its liabilities, need be. The bank must, of course, always be prepared to meet larger withdrawals than the normal, and therefore it must ordinarily not allow its cash to fall below a certain limit. But as the cash at the bank may be less than the sum of the moneys entrusted to it, this enables the bank to negotiate with part of the funds deposited with it and invest them in profitable undertakings. The bank will thus make a profit, and it will endeavour to attract as much cash as possible. With this object it will, perhaps, offer interest on deposits: naturally, at a comparatively low rate of interest. But the convenience and security of keeping one's money in a bank are frequently sufficient inducements to attract depositors. Thus the concentration of the cash of individuals is in the mutual interest of the banks and the public.

As a result of this development the store of money of the national economy is divided into two parts, one of which is *reserve* in the banks, while the other is in the hands of the public and is known as the sum of money *in circulation*. When the custom of putting one's money in a bank has become general, the national economy is able to manage with a comparatively small sum of money in actual circulation, but it needs to keep the bank reserve at a certain level. This reserve is called into use whenever the total demand for circulating money exceeds the normal amount. At such times money flows from the reserve into the circulation, and, when the demand abates, it flows back into the reserve. The amount of the money which must normally be kept as reserve is, therefore, fixed by the extent of the fluctuations of the public requirements in circulating money.

However, this concentration of cash which we have described must, on the whole, effect a considerable diminution of the money-requirements of the national economy. To look at the matter from a different point of view, with a given sum of money it must be possible to effect a larger number of payments. In other words, the concentration of the cash diminishes the scarcity of money.

We have here considered the bank-deposits only in so far as they represent mere sums of money which are repayable at sight. These deposits are received by the banks, as we said, partly from business concerns, which always need cash for current purposes, but prefer to keep this cash in part in a bank, partly from private individuals who have means at their disposal for a short time, either for consumption or for investment.

But the banks also receive deposits of a different kind. Sometimes, for instance, a man who has saved money leaves the investment of it to his bank. He lends his money to the bank at interest for a long period. The bank has then to find an investment for this capital. This investing on behalf of the public is a special business, and, although it is to some extent conducted by the banks, special institutions are also created for the purpose. For small savings the Savings Banks are mainly to be considered. There are, naturally, also intermediate forms besides these two chief types of deposits; in these the money is repayable in a short time and bears a lower rate of interest, and it remains open whether it is to be regarded as a temporary investment or as so much cash. In a study of the nature of money we have, clearly, to ignore all deposits which represents investments, and confine ourselves to the cash that is entrusted to the banks for current use.

The second and third stage in the rational utilisation of this cash is reached when cheques are introduced. The bank may authorise a depositor to issue, on his credit, demands on the bank by means of a *cheque:* that is to say, payable at sight. In what follows we will, for brevity, call these credits that may be drawn upon by means of cheques simply "deposits." In paying with a cheque we simply give the payee a demand on a bank for money at sight. The payee may, of course, pass on the cheque to another person in payment instead of paying it into a bank, but this use of cheques is not the customary procedure. Here we assume that, as is commonly the case, the cheque is used for the effecting of a single payment between members of the public.

This payment, however, may be effected in several different ways. If the cheque is presented at the bank by the receiver, there is no material advance upon the first stage. Payment by cheque is in that case not a substitute for payment by cash. But if the receiver himself has an account, he may merely have the cheque put to his credit. Here we may distinguish two cases. Either the receiver has his account in the same bank as the writer of the cheque or in a different bank. In the first case, clearly, the cheque involves only a transfer in the bank's books. The payment is effected without any money being handled. This process of transferring, which may, if the bank has a whole network of branches, enable payments to be effected between people in different places, and thus greatly facilitate the settlement of accounts, is the *second stage* in the development of the holding of cash.

In the second case, however, the bank of the receiver would be compelled to cash the cheque at the bank of the giver, and in the end the payment would involve the handling of cash. This is avoided by a system of balancing between the banks which is known as "clearing"; and this is to be regarded as the *third stage* in the development of the holding of cash.

The introduction of cheques, in conjunction with the appearance of the clearing system, enables the banks to meet the demands of their depositors for the most part without paying out cash. Each bank, however, needs funds in order to meet the requirements of its clients in cash and any unfavourable balance in the clearing; and these funds must have a certain ratio to the entire sum of their deposits.

The *fourth stage* is the concentration of the cash of the banks in a central bank. Naturally, the banks retain a sufficient sum for their daily needs. What they need beyond this, as reserve fund for greater security, is deposited in the central bank as the "banking reserve." For the clearing business this means, in the first place, that differences may be met by drawing upon the reserve fund. We thus reach a stage when cheque-payments between those who have accounts can be effected entirely without handling cash, and no fund need be kept for that purpose.

The banks, however, must always keep certain reserves of cash in order to be able to meet their deposit liabilities in cash at any time. The partial accumulation of these reserves in a central bank has the same effect as the corresponding accumulation of the cash of individual households in the banks; it means a saving in the collective cash-requirement. This saving, however, must be relatively smaller, as the cash-requirements of the various banks are generally subject to the same influences of seasonal or other pressure. Hence the money-needs of the banks occur, on the whole, at the same time, and the central bank has accordingly to meet the total of these demands in full. The seasonal balance of the money-requirements of a number of banks will probably never go so far as the corresponding balance of the money-requirements of a far larger number of bank-clients of the most diverse occupations and in the most varied economic circumstances. The central bank is therefore obliged to keep a relatively large sum to meet its reserve-liabilities, and it can only invest a comparatively small part of the deposited funds in remunerative ways. Naturally, the banking reserves at the central bank are not interest-bearing.

The procedure we have described is of the first importance in connection with the supply of means of payment to the national economy. As credits can be disposed of by means of cheques, and therefore payments effected without any coin being handled, the deposits assume the character of independent media of payment, substituted for money. But they have this character only to the extent to which they exceed the funds which cover them, because the remainder of the deposits represents only the money stored in the reserve. The main thing is, however, that by the use of cheques certain money-claims which are payable at sight are put on the same footing as money as media of payment, and they enter into competition with money, thus diminishing the scarcity of money.

We have so far described the matter as if the deposits always arose by the public handing over its superfluous supplies of money to the banks. This is only partly the case. In point of fact the deposits are chiefly formed, and continuously nourished, by the bank in question making advances to its clients, either by discounting bills or by loans, and crediting its clients with corresponding amounts in their accounts. This is even more true as regards the reserves of the banks at the central bank. Frequently the bank also grants its customers the right to draw cheques up to a certain sum although there is nothing to cover them. These credits given by the bank may be regarded as fictitious or book-credit deposits. " Deposits " created in this way are quite equivalent to the others as means of payment.

In these circumstances the business of banks does not consist entirely, perhaps not even mainly, in the profitable investment of the funds entrusted to them in the form of deposits, but rather in making advances which will not be paid out in cash, but will remain with them as deposits. It is true that these deposits are transferred by cheque from one bank to others, but this does not lessen the total amount of deposits in the national economy in question; it forms rather a permanent part of the money-store of that economy, a part that is still further enlarged at each increase of these advances. Sums are paid in cash from the deposits, it is true, but on the whole, in normal conditions, equal sums are paid with the accounts in cash, so that the entire cash-supply of the banks is undisturbed. This balance, however, can only be maintained as long as the credits thus created are not too large. Here we have, as we shall see presently, the limit of the apparently endless power of the banks to create deposits.

The deposits can never wholly replace cash as means of payment. Even in highly developed deposit-systems cash is used on a large scale in certain circles and for certain kinds of payments. The whole of the working class, at least the majority of the skilled workers, and in part the small shopkeepers and most of the small farmers, are, as a rule, entirely outside the world of cheques. Moreover, those who have current accounts need a good deal of cash for their daily personal uses. Hence by far the greater part of the actual consumption, even in an advanced economic system, must be paid for in cash (including bank-notes).

As to the relative importance of the deposits on the one hand and money (including bank-notes, etc.) on the other, Prof. Fisher came to the following conclusions for the United States in the year 1909.* The amount of money in actual circulation—that is to say, not in reserve at the banks or the Treasury—amounted to 1,600,000,000 dollars. The deposits amounted to more than four times as much, or 6,700,000,000 dollars. Money-payments amounted to 34,000,000,000 dollars a year, and payments by cheque to 353,000,000,000 dollars, or the far greater part of the entire sum of payments, which reached the enormous total of 387,000,000,000 dollars.

The quantitative ratio of deposits and money in the national provision of means of payment varies considerably from one country to another, and is, even in any one country, subject in the course of time to variations, usually in the direction of an increasing use of deposits as media of payment. At any given time, however, this ratio is settled by the habits of the people, and may therefore be regarded as a definite magnitude. The public will hold against its cheque-accounts an average sum in deposit which has this definite ratio to the amount of money in actual circulation, neither more nor less. Hence if the banks create a surplus of deposits by their advances, they will have to meet demands for payment in cash. The suggested ratio of deposits and money is, of course, not absolutely fixed. In certain circumstances the demand for means of payment looks especially to deposits; on other occasions to money. However, even these variations depend upon independent causes which, as a rule, do not fall under the influence of the banks.

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* Fisher, *The Purchasing Power of Money* (New York, 1912), p. 305.

The modern development of the banking system has put into the hands of the banks the entire business of supplying the community with media of payment. If we consider a self-contained economy with a gold standard, and do not take into account the possibility of producing gold, the sum total of the effective media of payment, or the sum of the money in circulation and the deposits, can only be increased in co-operation with the banks. That the deposits can be increased without diminishing the amount of money in circulation only by an increase of the bank advances is obvious, but even the increase of the amount of money in circulation is only possible by the banks drawing upon their reserves. Hence the whole demand for media of payment looks to the banks, and every enlargement of the community's supply of such media depends upon a corresponding enlargement of the bank advances.

In modern conditions it is, doubtless, the rule that enterprises cannot meet their need of media of payment out of their own means. The capital of the undertaking, together with the capital raised by funded loans, hardly suffices, as a rule, to cover the real capital employed in the enterprise, whether in buildings, equipment, or other investments, or the liquid capital which is present in the form of raw material or half-manufactured products. The cash-requirements of the business are usually covered by bank advances. The means of payment put at its disposal by the bank are only to a small extent kept as cash. The remainder is a reserve at the bank, on which cheques may be drawn. These reserves are to a slight extent covered by cash which the banks have received from the public in the form of deposits and keep in their reserves. The far greater part of the cash-resources consists of deposits which have been created by bank advances.

We see, then, that the banks are not merely the storers of cash for commerce, but themselves create cash-resources, mostly in the form of newly formed deposits, and put them at the disposal of business in the shape of advances. With this development the concentration of cash in the banks reaches its final stage.

§ 44. THE LIMITS OF DEPOSITS.

Deposits on current accounts are, as we saw, a special medium of payment competing with money. It seems, at first sight, to be in the power of the banks to increase this medium of payment as much as they please. Customers of the banks who wish to extend their business, and need further media of payment in order to do so, receive these means in the form of credit, either by the discounting of their requirements or by loans on their securities or, more simply, on their note of hand. New deposits can be created as long as the banks make these advances. But we must at once regard it as impossible that there should be an indefinite multiplication in this way of a means of payment which is actually used to a very great extent in the modern social economy, and is put on the same footing as money. If the price-scale is to have any stability, there must be a certain restriction of the entire provision of means of payment, and therefore of each particular medium of payment. As a matter of fact, a medium of payment only attains its proper character, as we saw previously, in virtue of the way in which its relative scarcity is effected. This applies also to deposits.

The limitation of this medium of payment is secured by the liability to pay the deposits in cash on demand. This proposition is not self-evident. The objection might be raised, for instance, that if the deposits themselves can be used as media of payment, business need not demand the payment of them in cash, and thus this supposed limitation of the deposits would be ineffective. This objection raises the more general question, what is the object of the bullion reserves of the banks in a national economy with an advanced cheque-system? In dealing with this question it is better to ignore for the moment the money-demands which are made for payments abroad, as it will be more convenient to devote a special chapter to international payments (Chapter XII.). We therefore take no account here of any transactions with foreign countries, and we confine our consideration to "the self-contained economy."

At every stage of the economic development the total demand of business for media of payment is, as we have said, distributed in a certain proportion between money and deposits. When there is a more abundant supply of means of payment, there is an increased demand for circulating money, and this increased demand turns to the cash at the banks. Thus the banks cannot put an unlimited supply of means of payment at the disposal of business without bringing upon themselves demands for cash.

As long as these demands can be confined within certain limits, they can be met by means of the cash-reserves. If, however, the demand for money continues to increase, it is clear that this will become impossible. The banks are therefore compelled to impose certain limits on themselves in the particular activity by which they supply business with media of payment. On the whole these limits must be of such a nature that the reserve is only touched occasionally, and is preserved intact, generally speaking, over a long period of time. This secures a certain limitation of the deposits and thus of the supply of media of payment.

This limitation of the supply of means of payment does not, perhaps, quite prevent the demands of business for money, but it restricts them to such an extent that they can be met out of the cash-reserves of the banks.

Hence the object of the entire reserve of money kept by the banks is to meet those demands for money which arise from the advances made by the banks even when the provision of means of payment is duly limited. The amount of the reserve has to be settled in view of this object.

We must further notice that the need of media of payment in the national economy is by no means constant; it is subject to considerable variations from causes which are beyond the influence of the banks. In the first place, the demand greatly exceeds its normal proportions at certain times of the year. At the end of every quarter large sums are required. Rents, salaries, and dividends of every sort are then paid on a very large scale. Currency for these payments has to be ready several days in advance, and it is several days after quarter-day before the demand for means of payment returns to its normal proportions. To a smaller extent there is a similar rise in the demand on the last day of every month, when settlements on the Exchange are made. Autumn brings a demand for large sums of money in connection with the harvests. Then there is the cost of presents at Christmas, and of holidays and travel at other times of the year. In the second place the demand for means of payment is influenced by the fluctuations of trade. When there is a general boom, there is an intensification of the whole national economy; prices generally rise, and the demand for money is often enormously increased. Finally, there is a similar rise in times of crisis. On account of the disturbance sums of money which were expected do not come in, or not at the right time, and, on the other hand, means must be kept ready to meet unexpected demands, such as the redemption of protested bills. Everyone will in the circumstances try to make his supply of cash as ample as possible. Thus in times of crisis there is an extraordinary demand for money, a demand that reaches enormous proportions if it is feared that the banks will presently refuse to make further advances. Another general cause of increase in the demand for means of payment is the rise of prices. In this respect the banks are hardly entirely passive; not infrequently they have positively encouraged the rise of prices by increasing their advances and thus causing an increase of deposits and an enlargement of the supply of media of payment.

In all these fluctuations of the demand for means of payment it is a great advantage that the deposits can easily be enlarged by new advances, and so they represent a very elastic medium of payment. It is neither possible nor desirable to regulate the provision of means of payment by the terms of bank-advances so strictly that no room is left for independent fluctuations of the demand. But if there is an increase of deposits under given terms of advance, there is, as a rule, a corresponding, although, perhaps, not strictly proportional, increase of the demand for circulating money. The bank reserves must find the material needed to meet this demand.

There must therefore be in the national economy a reservoir of ready-money out of which business can draw enough to cover its occasional supernormal demand for circulating money, and to which the money can return when the demand abates. This purpose is served by the totality of the bank reserves. With this object it is necessary, in normal conditions, for the reserve to have a minimum figure, defined by the amount by which the maximum demand of business for ready-money exceeds the normal. This difference depends, of course, upon the regulation of the total provision of media of payment on the part of the banks, and it can be reduced to a certain minimum by a due strictness in this regulation.

The margin within which the amount of circulating money fluctuates naturally grows broader in proportion to the amount of money itself, and the normal reserve must therefore be taken as a certain proportion of the amount of money normally in circulation. And as this amount in turn has, at a given time, a definite ratio to the total amount of deposits, the normal reserve, which has to be kept for the purpose of cashing the deposits, may also be expressed as a proportion of the entire amount of the deposits. We must note that this ratio is smaller in proportion as the deposits gain upon money as media of payment, so that a national economy with a highly developed deposit-business and a relatively small money circulation can manage with a comparatively small amount of cash to cover the deposits; as English experience shows.

The means by which the banks succeed in protecting their reserve and thereby securing a certain stringency of the supply of media of payment is, as follows from the preceding, to restrict the advances by which new deposits are created. To-day, however, no large bank, at least no central bank, will make advances up to a certain limit, and then suddenly refuse its customers any further accommodation. The necessary restriction is rather achieved by making more stringent the terms of discounting, loans, etc.

Hence the real regulation of the creation of new means of payment in the form of deposits is not done by fixing a rigid limit of the amount to be advanced, but by controlling the terms on which the banks will make advances. *How* these conditions work we will consider later (§§ 47-49). Here we have merely to note the *fact* that the terms of advances by the banks are the means by which the requisite limitation of the deposits, and thus of the entire provision of means of payment, is secured.

The mechanism by which the supply of media of payment in a national economy is regulated is as follows: By means of their terms for advances the banks generally control the total demand for media of payment, while leaving a margin for the independent fluctuations of this demand. The demand for media of payment is distributed in a certain ratio (subject to small fluctuations) between money and deposits. Thus the amount of money in circulation as well as of the deposits is determined, within certain limits of fluctuation, by the terms of accommodation. The demand for money within these limits is met by the store of money in the banks. The terms must be settled in such a way that the reserve will always be able to discharge this function. For this purpose the regulation of the supply of deposits to business must on the whole be so conceived that cash-payment of the deposits will not be asked as a rule. This is the only way to maintain cash-payments over a long period.

Hence by means of the terms on which they will make advances the banks can impose certain restrictions on deposits, which seems at first a medium of payment that may be multiplied indefinitely, and so put it roughly on a par with money. If the regulation is strict enough, and an adequate supply of cash is retained, it is always possible to meet the demands of business for cash, and thus put the deposits absolutely on a par with money.

In a modern economy, therefore, the due restriction of the deposits, and consequently of the entire provision of means of payment, is in the hands of the banking authorities. The guarantee that the banks will discharge this function lies in the fact that it is the only way in which they can meet their liabilities to pay cash for deposits on demand.

It might be expected that a function of such great importance to the community would be subject to State-regulation. But against any legal regulation of the reserve, any attempt to fix a minimum ratio between reserves and deposits, is the circumstance that reserves fixed in this way would be sealed even in the case of an extraordinary demand, and would consequently be prevented from discharging their proper function. Such regulation has generally been avoided.

§ 45. Bank-Notes.

The bank-note is an authorisation of a bank to draw upon itself for a round sum, payable to bearer at any time. Such notes serve as means of payment like deposits, but they do so in rather a different way. In payment by bank-note a money-claim upon a bank is directly made over to the payee, whereas in the case of deposits the transaction requires a cheque. In reality the process is the same in both cases. But the bank-note, which in itself is the certificate of a money-claim, is clearly much nearer to money as a means of payment than a deposit is. The bank-note can, like coin, make any number of purchases in succession, whereas payments by the transfer of deposits require the writing of a fresh cheque every time.

Further, the bank-note, particularly if it has been issued by a large central bank, has a greater and more widely recognised security than a cheque. The security of a cheque does not depend merely upon the bank on which it is drawn, but mainly upon the drawer. Only a person to whom he is known can take a cheque as payment, whereas anybody who has confidence in the bank can accept a bank-note. Hence in the physical sense the bank-note can circulate just in the same way as coin. In this respect the cheque is far inferior to the bank-note. Bank-notes also approach coin in the fact that they have a rounded-off face value, and can therefore, if there are notes of suitable denominations, conveniently be used for the payment of any sum of money. It is, as we have seen, these two qualities, generally recognised value and rounded-off face value, which distinguished minted currency from raw metal as means of payment, and make them money. It is the same qualities which enable bank-notes to discharge the special currency-functions of cash.

If the bank-note is the issue of a solid bank, it is readily accepted in payment by everybody, and is therefore on exactly the same footing as money as a general medium of exchange and payment. It is a universally recognised principle of law that a liability has been discharged when there has been payment in bank-notes. The notes of the central banks are even recognised as legal tender; at least in England, France, and Sweden, and since 1910 in Germany. On this account the bank-note approaches so close to the idea of money that the general public regard it as money. The only thing that prevents us from recognising it to be money is the fact that the bank-note is not a real commodity, but merely a certificate of a claim.

The moment the bank is relieved of its liability to redeem its notes in gold the bank-notes become real money. A country then has a paper-money system; the inconvertible notes which are recognised in it as legal tender have a "forced currency." These bank-notes no longer represent money-claims, but are themselves money; though we must notice that, as long as there is any prospect of returning to cash-payments, the notes in a sense retain the latent character of money-claims.

The fact that convertible bank-notes are merely money-claims, and not money, does not in practice curtail the use of notes of the central banks which are made legal tender. Experience shows that on account of their convenience the notes will still be preferred by the public, and will tend to displace coin as media of payment. Where this substitution was regarded as undesirable, it was found necessary to avoid making the notes too small. The Bank of England, for instance, would not issue notes of less than five pounds sterling. The German Reichsbank, which used to issue no notes of less face value than a hundred marks, received in 1906 the right to issue fifty-mark and twenty-mark notes, so as to enable the bank to attract a sum of money corresponding to this issue of notes, or at least to meet in part with these notes an increasing demand for circulating money. In Sweden, where the National Bank issues five-crown notes, there is no gold in circulation; the whole supply of bullion is kept in the National Bank.

Hence bank-notes meet the demand for cash just as well as money. In this respect the position of the bank-note is somewhat different from that of deposits. Deposits replace a private store of cash to a certain extent. Bank-notes replace coin in the private cash-supply which is still necessary. Thus the bank-note is suitable for meeting the demand for money that still remains when the cheque-system has been developed, at least as regards payments of fairly large amounts. How far the bank-notes displace coinage depends mainly, as we said, upon the amounts for which they are issued. When notes of the value of the smallest gold coins are issued in sufficient numbers, the entire circulation of current coin may be replaced by them, and only token coins be left in circulation with the notes.

This liability of money to be displaced by notes is especially important when it becomes necessary to deal with fluctuations of the demand for currency. According to what we said in the previous section, an increasing demand for circulating money looks to the reserves in the banks, and in the last resort to the central bank. This demand may be met by a larger issue of notes, at least to the extent to which notes have a share in the regular circulation. As a rule, in fact, the relative share of notes in the circulation rises when there is a strong demand for money, so that the abnormal demand may be met to a still greater extent by the issue of notes. In this way the right to issue notes enables the central bank more or less to be independent of the reserve which it must hold against its deposits.

As long as bank-notes displace money in the circulation, either owing to the issue of notes of smaller denominations or because of changes in the habits of the public, the amount of notes may be increased without any increase of the total provision of means of payment. But when this displacement comes to an end, and the money assumes a, on the whole, definite comparative share in the circulation, every further increase of the notes must provoke a corresponding relative increase of the demands of home commerce for coin. The effect of an increased issue of notes is then the same as that of a fresh creation of deposits.

As a fact, notes and deposits together form a group of media of payment which we may properly call "bank media of payment," the common feature of which is that they are created by the banks and supplied to the public, and that the requisite quantitative limitation of them is due to the same factors. This limitation is necessitated, as we saw in the case of deposits, by the fact that any disproportionate creation of bank media of payment provokes demands for cash which look to the bank-reserves, and they can only be kept off, in a general and permanent way, by moderation in the creation of bank media of payment.

However, in a country where notes have a comparatively large part in the circulation, these demands are relatively small, and practically they disappear altogether when notes have entirely expelled coin from the circulation. In a self-contained economy, to which we here confine our attention, an unlimited multiplication of bank media of payment would lead certainly to an increased demand for token coin, but would not be checked by a demand for standard money. Under a gold standard, however, there is always a demand for gold for non-monetary uses, and this demand will, as a general rule, rise proportionately with every increase of the supply of means of payment, and look to the bank reserve, which will check the multiplication of means of payment (*cf.* § 50).

There is, moreover, a possibility of a continuous multiplication of means of payment only as long as confidence in the bank's capacity to cash its notes and deposits is undisturbed. We find, therefore, that a minimum reserve is always held against the bank media of payment, and that this is not at any time brought into use; indeed, as recent experience has shown, it is attempted to protect the reserve in emergencies by relieving the central bank of its liability to pay in cash.

For the rest, the object of the reserve is, as we said in connection with the question of the limitation of deposits, to provide a fund for meeting these periodic increases of the business demand for money which occur in every economy. Hence the store of cash at the central bank is not chiefly used (as far as home trade is concerned) for the redemption of notes or other liabilities that fall due daily, as is often supposed, but to facilitate the extension of these liabilities and thus to meet all legitimate demands of a growing commerce for means of payment.

The means by which the circulation of notes and the deposits are kept within certain limits are the terms on which the bank media of payment are offered to the public. As the bank can, generally speaking, only supply its customers with media of payment, but has no influence on the kind of media of payment which the customers require, the terms are, naturally, the same for both media, and must, therefore, be considered together in what follows.

In view of the great importance of a circulation of notes to every stratum of the population and that resemblance of bank-notes to money which seduces the average politician, we quite understand how it is that legislation mainly concerns itself with regulating the issue of notes and has frequently laid down very special rules to restrict this, whereas there has generally, as we said above, been no corresponding regulation of deposits. We must bear in mind that legislation can only control the right to issue notes, not their actual circulation, which it remains for the bank itself to regulate in accordance with the economic situation at the time. We shall now see that in these efforts legislation has not succeeded in the economic field, as so often happens, in reaching the direct realities of life.

For the purpose of regulating the issue of notes either the maximum amount of notes in circulation was fixed, as in France, or this amount was fixed in a certain ratio to the reserves, as in most other countries. In the latter case there are two chief methods to be considered.

The first method, which was first used for the regulation of the issue of notes by the Bank of England, consists in assigning the amount or "contingent" of the issue of notes not covered by the reserve, or in fixing a maximum amount by which the circulation of notes may exceed the cash-reserve. The principle of this is that a certain minimum of notes must always remain in circulation, as business cannot do without the notes, and that a sufficient reserve must be kept to redeem the other notes. When the issue of notes is regulated in this way, the right to issue notes grows only in the same proportion as the supply of cash. The elasticity which the issue of notes is supposed to give to the entire supply of media of payment is thus very restricted, and it only exists in so far as the right to issue notes is not exercised in full. The great disadvantage of the method, that it does not give the necessary elasticity of an issue of notes in times of crisis, has been met in England simply by suspending the relevant provision of the Bank Acts in case of need. German currency legislation, which took over the principle of contingents from the English, has secured a regular elasticity of the note-circulation by—apart from the raising of the contingent at quarter days, introduced in 1909—allowing transgressions of the contingent on payment of a tax to the amount of the transgression. This tax, which might be a consideration for a private bank, can hardly influence the Reichsbank in its policy of issuing notes. Hence for the Reichsbank assigning a contingent is scarcely a restriction of its issue of notes.*

The second method of legally regulating the issue of notes in proportion to the reserve consists in fixing a certain covering percentage. This method also has been adopted in German currency legislation: the circulation of notes must be covered by cash to the extent of at least a third. In the English note-banks this amount of covering was long regarded as the correct proportion dictated by practical experience. The reserve fixed on this basis is clearly for use in bad times, either for redeeming the notes or for increasing the issue of notes beyond the normal ratio of covering. But when legislation fixes this ratio of covering, it ceases to be a practicable rule for the restriction of the issue of notes. If, that is to say, the State fixes the normal ratio of issue of notes and reserve, the bank is cut off from the disposal of the reserve at the very moment when it ought to be of practical use.

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* See the remarks on this in the memorial publication of the Reichsbank (*Die Reichsbank* 1870-1900, p. 219), where it is said that "the Reichsbank has never allowed itself to be mechanically influenced by the intentions of this system in its discounting policy."

And if legislation chooses a lower covering percentage than what may be regarded as normal, it clearly affords no guarantee of sufficient covering in normal times, yet, perhaps, puts a certain obstacle in the way of using the reserve in time of need. In any case, the one-third covering rule is not the guiding principle of the Reichsbank in its issue of notes in normal times, as the Bank's actual covering of the notes is usually somewhere about two-thirds.

Thus we see that the direct limitation of the issue of notes in no case lies in legislative rules as to the cash-covering. The bank will always endeavour to have a different and better covering ratio, and will take into account the necessity of being able to meet the requirements of the law in all circumstances without allowing itself to be directed entirely from that point of view. Still, there is no direct and effective means of regulating the circulation of notes even in these efforts of the bank. No bank will issue notes up to a certain sum and then refuse to meet further demands. The real restriction of the circulation of notes lies always in the concrete terms on which the notes are offered to business.

In this respect, therefore, the notes resemble deposits.

§ 46. The Reflux of the Bank Media of Payment.

Our studies so far have shown that the supply of commerce with bank media of payment is in the main simply regulated by the terms on which they are offered. The redemption of these media of payment in money is important only as regards the adjustment of the very small fluctuations of the value of bank media of payment relatively to money which remain possible under a sound system of banking. Experience shows that it is possible for the banks to give their media of payment a definite value without using any other means than the aforesaid terms. From this we may conclude that it must be possible substantially to maintain the same stability of the price-scale when the liability to redeem disappears. In point of fact, the provision of means of payment in a country where bank-notes with forced currency are the basis of the system of payment is not regulated in any other way.

Under a gold standard we must further note that, assuming there is a certain quantity of gold, the entire provision of media of payment is exclusively regulated by the terms on which the banks offer such media. To meet its requirements in gold coins commerce looks to the cash-stores at the banks. The terms which the banks fix for their supply of means of payment determine, when there is a given amount of gold, the amount supplied to commerce, not only of bank media of payment, but also of gold coins, and therefore the entire provision of means of payment, or, if you like, the extent to which the existing supply of gold shall be used for purposes of payment.

In these circumstances the study of the regulation of the supply of media of payment by the aforesaid terms must clearly occupy a central position in the theory of money. In this study we must assume that there is no redemption of the bank media of payment, and we may therefore, for the sake of clearness, consider a national economy in which there is no circulation of money, but only of bank media of payment.

In regard to the terms of the provision of means of payment by the banks, it is in the first place important that both the bank-notes and deposits, if they are not simply issued against cash or liabilities that fall due, must always reach the public in the shape of *advances* by the banks. This is important in connection with the restriction of the provision of means of payment mainly from three different points of view. First, because it brings about a regular *reflux of the bank media of payment;* secondly, because the *covering of the bank media of payment* is effected by the selection of the securities for the advances; thirdly, because the *interest* that is charged for the advances restricts the demand for them and thus indirectly restricts the supply of means of payment. We will consider these three points of view in successive sections, and will begin here with the question of the reflux of the bank media of payment.

The amount of outstanding bank media of payment may be reduced by the public exchanging its at-sight claims on the banks for long-period claims, which means a growth of the foreign capital entrusted to the banks for a long time, or by the banks increasing their own capital. Even the revenue of the banks in the form of interest etc., represents a reflux of bank media of payment, though this is generally counterbalanced by the withdrawals and bank-dividends. We will ignore these payments in and out, as, on this assumption, they balance each other. We further assume that the active business of the banks consists entirely in making short-term advances. The regular reflux of the bank media of payment to the banks is then secured by the fact that these means reach the public in the form of advances which must be repaid when the time comes. Clearly, in the circumstances we suppose, the amount of bank media of payment returning daily is equal to the amount of the advances which fall due for payment daily.

In order to make still clearer the regulation of the bank media of payment by the terms of accommodation, we will for the moment consider a state of things in which the sum of outstanding loans and also of the bank media of payment remains constant.

We may then at once define the *reflux-rapidity* of the bank media of payment as the ratio of the daily reflux to the total sum of outstanding bank media. If, for instance, $\frac{1}{30}$ of the whole outstanding bank media of payment returns daily to the banks, the reflux-rapidity is $\frac{1}{30}$. The average circulation-period of the bank media of payment is clearly the reciprocal value of this reflux-rapidity, and therefore in the above example equal to thirty days.

Similarly, we may define the *liquidity* of the assets as the ratio of the sum of the advances which fall due for repayment daily to the sum of the advances made. If $\frac{1}{60}$ of the loans are repayable daily, the liquidity is equal to $\frac{1}{60}$. The average period for the advances to run is the reciprocal value of the liquidity, and is therefore in the above example equal to sixty days.

As the absolute daily reflux of the bank media of payment must be equal to the sum of advances falling due for repayment daily, it is clear that in the above figures the total amount of the advances is twice as great as the amount of outstanding bank media of payment. In general the reflux-rapidity of the bank media must be equal to the liquidity of the advances multiplied by the ratio of the sum of the advances to the sum of the bank media of payment. As, further, the sum of the advances represents the assets of the banks, and is therefore equal to the sum of their liabilities (including under that head their own capital), this latter proportion is equal to the ratio of the total amount of liabilities to the total amount of bank media of payment, and therefore equal to the proportion of the total liabilities to the liabilities which are due for repayment at sight. Hence the reflux-rapidity of the bank media of payment is equal to the liquidity of the advances multiplied by the ratio of the total liabilities to the liabilities which are payable on demand. The greater the liquidity of the advances and the smaller the proportion which the liabilities payable on demand bear to the entire liabilities, the greater is the reflux-rapidity of the bank media of payment.

In order to make this clearer by a simple example, let us suppose that the liabilities payable on demand represent $\frac{1}{5}$ of the whole liabilities, and that the liquidity of the advances is $\frac{1}{90}$, or, in other words, that the average period of advances which are outstanding is ninety days. If advances with a ninety-days term to the amount of a million pounds are granted every day, and paid out in bank media of payment, the total sum of advances outstanding at one time is clearly ninety million pounds, and the total of the bank media of payment is $\frac{1}{5}$ this amount, or eighteen million pounds. And since, on the conditions assumed, advances to the amount of a million pounds are repayable daily, and are paid in bank media of payment, the daily reflux of such media must amount to a million pounds, or $\frac{1}{18}$ of the entire sum of outstanding bank media. The reflux-rapidity is therefore equal to $\frac{1}{18}$, and the average time of circulation of the bank media equal to eighteen days. Hence the bank media return to the bank every eighteenth day in the form of payment of the advances which fall due, and are at once used for further advances. This is repeated five times in the period of ninety days, which corresponds to the period the advances are outstanding.

A high degree of liquidity is important in so far as it enables the banks to adjust their advances quickly to the alterations of the solvency of their customers, or of the condition of various branches of trade and the quality of the securities offered, and so wipe out bad debts as speedily as possible and thus keep their assets at the highest possible level.

Moreover, a high liquidity of the assets in conjunction with a comparative restriction of the liabilities payable on demand relatively to the whole of the liabilities helps, as we have shown, to maintain the greatest possible reflux-rapidity of the bank media of payment. The reflux-rapidity is most important in connection with the proper supply of the community with media of payment and therefore with the maintenance of a stable monetary system. Here we have, especially, two points of view to consider.

In the first place it is essential to a sound provision of media of payment that the total amount of such media shall be reduced automatically, and as speedily as possible, when there is a fall in the demand. We are aware that this demand is in a modern economy subject to considerable fluctuations—at different seasons, for instance. The increase of the demand that occurs occasionally must be fully met by the banks. But the media of payment thus created must be withdrawn as quickly as possible when the demand abates. If this is not done, there will be a state of things in which the supply of outstanding media of payment exceeds the actual demand. And any such undue extension of the community's supply of media of payment always tends to lower the value of the standard-unit, and is therefore to be avoided as much as possible.

In the second place, it is clear that the regulation of the supply of media of payment by the terms on which the banks make advances is effective to the extent to which changes in these terms quickly obtain general applicability. If advances are made for thirty days, it will clearly be thirty days before any change of the terms can be enforced for the whole of the advances. If the advances were made for three months, the corresponding period will, of course, be three times as long, which would, clearly, much reduce the influence of the banks upon the market. The banks have at all times to keep in their own hands the provision of the community with means of payment, and they must consequently have adequate opportunities for the firmest possible action upon the community's supply of means of payment by the contraction of their advances. This can only be done by making more severe the terms on which they will grant new advances. This hardening of the terms, however, has a sufficient influence on the supply of means of payment only if a comparatively large part of the outstanding advances is due daily, and if, further, the total amount of the advances is large in proportion to the total amount of bank media of payment—in a word, if the reflux-rapidity of the bank media of payment is high.

§ 47. THE COVERING OF THE BANK MEDIA OF PAYMENT.

The advances by means of which the bank media of payment are put into circulation are, of course, as a rule only made against securities. As the maintenance of the requisite liquidity of the assets of the bank makes it necessary to make advances only for short terms, it is only temporary demands for capital that can be met by these advances, not the general demand for permanent capital-resources. In ordinary banking business, as a rule, the banks do not care to lend their means for more than three months. This restriction of the kind of demand for capital that may be met by the issue of bank media of payment naturally involves also a certain stringency of the supply of means of payment in the community.

The assets which fall under consideration in these circumstances for covering the bank media are mainly trade bills and loans against securities.

The *bill of exchange* in its various forms is, from the economic point of view, a promise on the part of a purchaser of a commodity to pay a certain sum of money, the price of the commodity, after a certain date.

The commodity is undoubtedly paid for provisionally by the bill. For the moment, therefore, the bill serves as a medium of payment; the possibility of paying with bills raises for the time being the purchasing power of the buyer. But a promise to pay is of itself not a real substitute for a medium of payment. If the vendor keeps the bill until it falls due, and the bill is then paid, the eventual payment will be made in the ordinary currency. The bill therefore merely postpones the payment, and does not make it superfluous. In this case the use of bills does not reduce the demand for media of payment. The same must be said also when the vendor of the commodity does not keep the bill himself, but sells it to his bank or hands it to the bank for encashment.

But the bill can serve as a real medium of payment when it is, after being endorsed, handed on to other persons as payment. In earlier times this use of bills was general, and there were often bills in circulation with a whole series of endorsements. As a rule home bills now serve only for a single payment. If they are not retained by the person to whom payment is due they are sold as money-claims, not used as media of payment. We shall take up the question of payment in foreign bills in a later chapter. Here, where we have to expound theoretically the home provision of means of payment of a national economy, we pass over the use of the bill as a medium of payment, and assume that it merely serves the purpose of payment when it is made out, and is then only bought and sold as a money-claim.

What makes the bill less suitable as a medium of payment is, chiefly, that it is not payable at sight, but after a certain period of time. In this the bill differs materially from bank-deposits and bank-notes; these also are money-claims, but they are payable on demand. This disadvantage of the bill has led to its being exchanged for the aforesaid media of payment or money. This is done by *discounting* the bill: that is to say, selling it to a discounter, who takes off a certain discount to compensate him for the loss of interest which he sustains from the day he buys the bill until it falls due. The discount corresponds to the difference in value between an at-sight claim and a claim of the same amount which only matures after a certain time.

The discounting of bills is, from the economic point of view, to be regarded as a loan to the drawer of the bill. Normally, in fact, the discounter puts at the disposal of the purchaser of a commodity the amount of capital he needs for the time during which he must retain the commodity in his business. The commodity may, therefore, in a sense be regarded as real security for the bill. Hence normally the total sum of the bills in circulation is covered by a quantity of commodities at various stages of manufacture. There can, however, be no question of a precise agreement between the time during which a commodity remains in the productive business of the buyer and the time when the bill he has accepted will mature. The current period of the bill may, for instance, last three months, while the process of manufacture (or of sale) may take four months. In such cases the total value of the material that is being worked up in trade is greater than the amount of the bills outstanding at any one time. This means that business partly has in its own possession the capital-resources needed for its circulating capital, and has only to derive part of it from the discounting of bills. It may, however, happen that the average lifetime of the bills of a business is greater than the average period of production in the same business. If, for instance, a bill takes three months to mature, while the material, which was bought by means of the bill, is, on the average, worked up and sold in a month and a half, clearly the total amount of the bills outstanding at any time is twice as large as the total purchase-value of the material in the business at one time which was bought by means of bills. In this case, therefore, the business has obtained funds by the discounting of bills, not only for circulating capital, but also for part of its fixed capital. It is, then, not quite accurate to say that the total amount of the bills in circulation is covered only by the circulating capital employed in the process of production. As a rule, it is true, in normal circumstances, this is the case. It is also beyond question that the total amount of the circulating capital of the community is much greater than the total amount of the bills in circulation at any one time.

Since, then, bank media of payment are covered by bills, and these in turn by circulating capital, it follows that the real covering of the bank media of payment lies in the circulating capital. From this point of view the bank media of payment are to be regarded as assignments upon the circulating capital of the community. This makes the bank media particularly suitable as means of payment. For by far the most extensive use of means of payment consists precisely in payments for circulating capital. If this circulating capital is bought by bank media of payment, this merely means that a general assignment on the circulating capital of the community has come into force in a concrete form. The vendor who takes bank media in payment uses these as he requires for the liquidation of bills, so that they return to the bank.

The covering of the bank media of payment by circulating capital is also important because in this way the community's supply of means of payment is adapted to the fluctuating extent of production. When the bank media are covered only by short-term bills, this adjustment of the provision of means of payment to the actual extent of production, and consequently to the actual demand for media of payment, is very effective. There is also the gain that the circulating capital which serves to cover the bank media of payment is estimated according to the most recent prices, and that the provision of means of payment is regulated as closely as possible to suit the fluctuations of the general level of prices.

Hence real bills of exchange, which represent the circulating capital in the continuous processes of production, are for the banks a particularly suitable covering of their outstanding media of payment. This is not because bills of exchange always afford better security than sound Government stock or other first-class bonds, but because the settlement of the bills is, so to say, part of the normal course of the process of production. This process itself provides in its normal course the means for meeting the bills which are covered by the material worked up in the productive process. Hence the banks need not interfere with the normal course of the national economy in looking for the settlement of the bills.

Together with bills of exchange we may consider *loans* as a covering for bank media of payment. The basis of a loan may be formed by commodities or by securities. In the first case the real covering of the bank media of payment again consists of circulating capital. In the second case the nature of the covering of the bank media of payment depends upon the nature of the securities. They may be mortgages, shares, bonds, etc., representing fixed real capital. In that case this capital must be regarded as the real covering of the bank media of payment. But if the security consists of Government bonds and similar documents without any real covering, there is no material covering for the bank media. They are in the last resort merely secured by the power to raise taxes which is behind such bonds.

As a rule, naturally, only commodities and securities that are traded in on the Exchange are used to cover bank media of payment. This traffic on the Exchange means the mobilisation of capital which is not in its own nature mobile: that is to say, which must not change hands in the normal course of the process of production. Mobilisation very materially increases the suitability of such capital for covering bank media of payment. It means that, at all events in normal circumstances, the security can be sold at any time. And as in loans the securities are only taken at a rate very much lower than the current Exchange quotation, one might suppose that such loan-liabilities were particularly suitable as a basis for bank media of payment. But we have to notice that the loan is not repaid by the normal course of the process of production. Hence, if the banks are compelled at times to collect the payment of their loans by a forced sale of the securities, it cannot be done without a disturbing interference which may be injurious to business life, especially in times of crisis, and must therefore be avoided by the banks as much as possible. In this respect loans on securities are far inferior to bills of exchange as covering for bank media of payment.

Within certain limits it may be justified from the standpoint of the supply of the community with means of payment, to cover bank media by loan-securities, and therefore in the last resort by fixed capital. For bank media of payment are also used to a certain extent for the purchase of securities and fixed capital. As, however, this use of bank media is of much less consequence than their use for the purchase of circulating capital, it is more consonant with a proper regulation of the provision of means of payment if loan-securities are not put on the same footing as bills of exchange as covering for bank media of payment; just as, for instance, German banking legislation prohibits the covering of notes with loan-securities, and the rate of interest charged for loans by the Reichsbank is always 1 per cent. more than it charges for discounting. This aspect of the question of covering is overlooked by those who wonder why the banks, when they have to find covering for their notes and credits, give the preference to the bills of a small trader or manufacturer rather than to the better securities of mortgages or shares in big companies, or even Government stock of important States. It is not merely a question of creating security in finding covering for the means of payment created by the banks; they must also look to the nature of the covering they obtain to bring about a certain general natural restriction of the supply of means of payment. Production is very suitable as such a general restriction, but the wealth of the community is not: the offer of trade-bills is, but that of bonds is not, as they represent fixed capital or a mere promise to pay. This inference is, however, not universal, as in England, where the use of bills is diminishing, we find that loan-securities play a great part as covering for bank media of payment.

A sufficiently stringent limitation of the provision of means of payment cannot under any circumstances be attained by the claims on the covering media. The circulation of bank media at any time corresponds to only a small part of the securities that can be used for the issue of bank media. The great volume of these securities is always taken up by the savings of the community; in other words, the great mass of the ability to command capital, which is necessary for taking over real capital, is provided by savings-capital. Only a small part of this demand for the disposal of capital can be met by the banks by the issue of bank media of payment. The proportions of this part, however, will always depend upon the rate of interest which the bankers charge for their advances and the way in which this rate compares with the rate on the general market for capital. Hence if there is to be an adequate restriction of the bank media of payment, there must be, in addition to the conditions we have already described, a proper regulation of the rate of interest at which bank media of payment are supplied to commerce by discounting or by loans.

We have seen previously (§ 8) that the money-income of any economic system is necessarily used for the purchase of the real income. The insight into the nature of bank media of payment which we now have enables us to be perfectly clear about this matter. The money-income of the individual takes the form either of money or of bank media of payment. Under a gold standard the income is primarily used for the purchase of the commodity gold, and therefore is seen directly to be purchasing power for a definite real capital.* In the second case the income, as we now know, takes the form of a claim upon the real capital of the economy. When a possessor of income " consumes " his income, he buys commodities which had hitherto been part of the (cirlating) real capital of the system of exchange. The rest of his income he must either use for the purchase of real capital or lend to others to use in that way. There is no other alternative. He cannot leave his income unused for some time, as is popularly supposed. He may fancy that he is doing so, but in reality he puts his money in the banks, and therefore puts it at the disposal of business or, in more general terms, the demand for capital. Hence the employment of unused income for the formation of real capital by no means depends upon any deliberate intention of the owner of the income to use it in that way. The idea that is common in financial journalism, and unfortunately not uncommon in science, that capital in the abstract sense can be stored up and not used for the formation of real capital until a later date, is clearly, after what we have said, false; it is simply based upon a defective analysis of the real processes of the economy of exchange. The formation of capital in the economy is always effected by the income that is destined permanently or temporarily for capitalisation taking over the addition to the real capital made by production. Any formation of capital, an abstract "accumulation of money," no matter for how short a time, without this real foundation, is impossible.

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* Under a paper standard part of the national income may be used for taking over a new issue of paper money. But this obviously does not affect the argument in the text.

§ 48. THE RESTRICTION OF THE SUPPLY OF MEDIA OF PAYMENT BY THE BANK RATE.

The fact that trade only receives bank media of payment from the banks in the form of interest-bearing advances is important in connection with the restriction of the supply of media of payment in the sense that in such circumstances, naturally, there will not be more bank means of payment put into circulation than are needed to meet the trade demand for advances. A bank cannot force its notes and credits upon business. The public is in a totally different position from, let us say, the Government which pays for commodities or services in inconvertible paper-money created for the purpose. The public can always deliver itself from a surplus of bank means of payment by putting its money at interest in the banks or paying its maturing debts into the banks without taking out advances to a corresponding amount. Hence there is a certain restriction of these means of payment in the very nature of the origin of notes and deposits, as we have described it. But it would be premature to conclude from this that the banks could not issue too many bank media of payment.

The demand of trade for bank-advances depends mainly upon the rate of interest at which the advances are made. The right to command capital is, as we have seen, bought and sold on the capital-market. This right is at first offered and demanded in the form of money, and therefore the immediate object of the capital market is the disposal of money. But bank means of payment represent as well as cash a formal capital which enables the holder to come into possession of real capital at any time in any form he pleases. Hence the offer of bank media of payment is just as much as an offer of money equal to an offer of the means to command capital. On the capital-market money-claims on the banks which are payable on demand have just the same position as money. And as the banks can, within certain limits, create these constantly maturing claims on themselves in any quantity, the objectively determined stringency of the command of capital on the market is destroyed.

On the whole the capital-market is regulated by the rate of interest. If the rate of interest is too low, the demand for capital exceeds the offer, and the result is a shortage of capital-disposal which causes the rate to rise once more. This normal self-regulation of the capital-market is disturbed by the intrusion of the banks with their offer of bank means of payment. If the banks put the terms for their advances too low, and the equilibrium of the capital-market is disturbed on that account, it can only be restored by the issue of further bank means of payment. As long as the shortage of capital-disposal is covered in this way, an excessively low rate of interest, not in accord with the real state of the capital-market, may be maintained.

Conduct of this kind on the part of the banks must, if it is prolonged, have an effect upon the whole capital-market. It is true that the direct action of the banks is confined to the market for short-term loans. But an abundant provision to meet the demand for short-term advances causes the offer of capital to turn more and more to the market for long-term or permanent capital-disposal, and this may reveal itself in a lively interest in issues of deeds and shares. This offer must, therefore, bring down also the rate of interest for the capital-disposal in question. The low terms of the banks will in this way influence the entire market for capital, and will have the same effect on demand as if there were a real increase of the offer of capital.

This conduct which we imagine on the part of the banks will obviously create an artificial purchasing power, with no corresponding increase of the goods that can be bought. This is bound to lead to an advance of prices, which means a diminution of the purchasing power of the unit of reckoning. The state of equilibrium requires that the supply of means of payment shall be definitely restricted, and this stringency can only be effected by a policy in regard to interest which is a genuine expression of the real scarcity of capital.

But putting the capital-market in a false position by offering too low a rate of interest will not be entirely without reaction. The appearance of counteracting forces is always the condition of the stability of the economic life. In this case the reaction is chiefly in the sphere of the productive process. The object of interest is to regulate the demand for new capital-disposal in harmony with the offer—that is to say, with the newly formed savings-capital. But as the interest has generally little influence on saving, its function as regulator of the capital-market consists mainly in restricting the demand for capital-disposal—that is to say, in directing the productive process. If the rate of interest is kept too low on the market, the mistake will make itself felt in lines of production requiring more fixed capital, and therefore in a relative increase in the production of capital. But an abnormal increase in the production of capital of this kind must gradually curtail the opportunities for a remunerative use of capital, or make new investments of it less remunerative. This would in normal circumstances lead to a fall in the rate of interest. But as the rate is already too low, the effect of the augmented production of capital is that the conditions of the capital-market are gradually brought into harmony with the current low rate of interest. In this way the equilibrium of the market is restored. The disturbing effect of the bank rate of interest ceases as soon as the rate becomes normal once more. This also puts an end to the special competition on the market which the banks had occasioned by their low rate of interest, and the cause of the extraordinary increase of bank media of payment disappears. The banks can only continue this increase of their media of payment by lowering once more their rate below that of the capital-market. In that case the counteracting forces come into operation once more, and they have the effect already described. If we assume that the banks maintain the rate which restored the equilibrium of the capital-market, the effect of the first reduction of the rate is that the capital-market passes from one state of equilibrium to another, in which there is more capital and a lower rate, and that there is at the same time an increase of bank means of payment. The artificial reduction of the rate has led to an artificially enhanced production of capital, which is equivalent to a forced increase of saving on the part of the community.

We see, therefore, that an undue reduction of the rate on the part of the banks leads to an increase of bank media of payment. On the other hand, an increase of the rate which is not based upon the state of the market must clearly lead to a curtailment of the current bank media of payment. Savings from income, which exist in the form of bank means of payment, flow to the banks, attracted by the high rate of interest, and they are used by the banks merely to reduce the total amount of bank media. From this we may conclude that it must be possible to regulate the provision of means of payment by the rate of interest. A suitable policy in regard to terms on the part of the banks can effect any desired curtailment of the bank media of payment.

Under a gold standard the issue of bank media of payment is, as we saw previously, limited upward by the liability to redeem. But redemption must be regarded as the last resort for curtailing an excessive growth of bank media of payment. Normally the supply of trade with such media is regulated mainly by the bank terms.

In a country where a central bank issues notes with forced currency, the amount of the notes may be indefinitely increased, and may, if there is no metallic standard whatever, be indefinitely curtailed. The central bank can in this case regulate at will the supply of trade with its notes, and therefore, indirectly, the entire provision of means of payment, by its rate-policy. Naturally, any considerable change in the provision of media of payment takes a certain time. The effect of the rate-policy upon the amount of means of payment is only gradually felt, but in the course of time any desired effect can be accomplished. In this it is, of course, assumed that the bank has entirely in its own hands its policy in regard to advances and terms. When the State makes upon the bank claims of either sort that cannot be repelled, or when the freedom of action of the bank is hampered by regard for the social risks of a severe policy of restriction, the problem ceases to be purely one of monetary policy.

The question now arises: How is the rate to be fixed so as to maintain a state of equilibrium? One might reply that the bank rate should be equal to the real interest on capital. But we must remark that there is no such thing as a " real interest " in any other sense than that of the market interest; and the market interest affords the banks a very unsafe guide for its rate-policy, as it is, as we saw, directly and strongly influenced by the bank rate.

The correct answer to the question can only be that in each period the banks must increase their advances just so much as corresponds with the amount of the savings put at their disposal in that time. If the advances are increased beyond this, they can only be found by an increase of the bank means of payment. Such an increase is, it is true, permissible to the extent to which the general economic progress creates an increased demand for means of payment, but otherwise it means an artificial purchasing power which reduces the value of the unit of reckoning.

In practice the bank rate under a gold standard is mainly regulated by regard for the need to protect the reserve. The rate-policy of the banks is then entirely controlled in the interest of the maintenance of the gold standard. Where the gold standard is abandoned, and the notes of the central bank have forced circulation, the basis of the rate-policy is generally found in the maintenance of a certain ratio of the home exchange to the foreign gold-exchange. In both cases the object of the rate-policy is to maintain a fixed price of gold within certain limits. This is possible, of course, only if the prices of commodities in general can be kept on a certain level. It is therefore clear that the rate-policy of the banks means in the long run a regulation of the general level of prices. But this connection cannot be fully explained except on the basis of a theory of the value of money, and to this we turn in the next chapter.

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CHAPTER XI

THE VALUE OF MONEY

§ 49. INTRODUCTION.

SO far our study of money has shown us that the scale in which all prices are calculated, and which is in itself an abstract scale of reckoning, can only attain stability if there is a certain stringency of the media of payment which hold good in the scale. If a medium of payment were to be had to an unlimited extent, it is clear that any price might be offered for commodities and services. Hence a certain quantitative restriction of the provision of means of payment is an indispensable condition of the steady assignment of prices, and therefore of a definite balance of money and commodities. It is thus perfectly clear that the amount of the means of payment must have a certain influence upon the fixing of prices, in the sense that an ampler provision of means of payment has a tendency to keep prices at a higher level. When there is a more abounding supply of means of payment one gets less for the monetary unit: the *value of money* is less.

The scarcity of the supply of means of payment, which is a condition for the maintenance of a stable value of money, must, naturally, apply to the *entire* supply. The stability of the value of money requires a certain stringency, not only of money in the proper sense of the word, but also of other media of payment, which are not money, but may be similarly used for the settlement of money-liabilities; the value of money must have a certain dependence upon the quantitative limitation of all these means of payment. Every medium of payment is, in point of fact, as we have seen, characterised in the first place by the particular method of limitation of its amount which is peculiar to it. In the preceding two chapters we have studied the special nature of this restriction in the case of metallic money, paper money, and bank means of payment. In the study of the various forms of money and of media of payment which are not money, this element, the restriction of the supply of means of payment, is always in the foreground. In that case we could only regard this restriction as a necessary condition of the stability of the value of money; we had to ignore its effect upon the value of money, or the quantitative dependence of the value of money upon the amount of money. What we have now to do, to bring our account of the nature of money to a logical conclusion and arrive at a satisfactory theory of money, is to make a thorough investigation of this connection between the value and the quantity of money.

As a stable value of money requires a definite limitation of the entire provision of media of payment, every enlargement of a medium of payment which is not accompanied by the restriction of some other medium of payment must have an influence upon the value of money. Hence a study of the value of money has to take into account the whole provision of media of payment. It is, therefore, not possible to deal with means of payment which are not money apart from the theory of money, as is often attempted. The central question of the theory of money, the question of its value, cannot be fully studied and answered unless we take into account the whole of the media which are actually used for the purpose of payment in the relevant scale of money.

It must have been noticed at an early date that an increase of the means of payment causes a general rise of prices, and therefore a fall in the value of money. After the discovery of America the supply of precious metals in Europe was so enormously increased that the consequent rise of prices was bound to attract attention and be traced to its proper causes. The history of the earlier paper standards was well calculated to reveal the truth that the indefinite increase of a medium of payment was sure to lead to an indefinite advance of prices, and so to an indefinite depreciation of the medium of payment until it became quite worthless. In the bank-restriction period in England finally, at the time of the Napoleonic wars, when the notes of the Bank of England had forced currency, it was shown by a very much disputed experience what effect an unlimited multiplication of bank-notes has upon the monetary system, and especially upon the value of money. The development of a real theory of money dates from that time. And in the very heart of the theory is the study of the connection between the quantity and the value of money.

It is clear that we cannot be content with the mere fact of this connection and with the truth that a definite value of money presupposes a certain restriction of the supply of means of payment. We must attempt to express in figures the influence of the quantity upon the value of money, to represent the value of money arithmetically as a function of its quantity. For this purpose we need to have first a very clear idea of the value of money.

This idea, like that of value in general, is not fixed. But the idea of value may, as far as commodities and services are concerned, be replaced by the quite definite idea of price. As far as the value of money is concerned this way of fixing the idea is of no avail, as, since prices are always calculated in the monetary unit, this unit is always equal to one, and so the value of money is always formally the same. An idea of the value of the money of any country can be obtained by measuring it by the standard of another. The value of the money of the first country is clearly defined by the amount of commodities or services that it will command. The monetary unit represents a greater or less amount of utilities, according as prices are low or high.

This consideration suggests the way we have to follow in order to get a clear idea of the value of money in a self-contained national economy. A diminishing value of money reveals itself in a general rise of the prices of commodities. We have, therefore, to define the value of money as the reciprocal value of the general level of prices. This does not, of course, give us a complete solution of the problem of defining the value of money, because there is still the difficult question how the general level of prices is to be defined so as to reflect as faithfully as possible the common movements of prices. We will return specially to this question (§ 52), and will meantime assume that the idea of the general level of prices is well known. The whole theory of the value of money is then reduced to a theory of the changes of the general level of prices.

§ 50. The Quantity Theory.

It was natural to suppose that money as such has no other purpose than to purchase commodities or make general payments, and that for this purpose any sum of money must suffice if the prices are suitable. This idea has been expressed in the *quantity theory*. In its original form the theory runs: Money buys commodities. The total amount of money buys the total amount of commodities. The total value of the money is therefore equal to the total value of the commodities and independent of the quantity of the money. It follows that the value of the monetary unit is in inverse proportion to the quantity of money. This is the substance of the quantity theory as we find it repeatedly expressed in earlier economic literature.

It is, however, easy to see that we cannot suppose an exchange between all the commodities on the one hand and all the money on the other. The quantity theory has therefore been formulated, with a nearer approach to accuracy, in the sense that the general level of prices is determined by the ratio of the money in circulation and the commodities that come upon the market. Thus money and commodities influence each other only when they come into contact. If we express the total amount of commodities on the market as T, the general level of prices as P, and the amount of money in circulation as M, the quantity theory may be put in the following equation

$$TP = M$$

We must draw attention particularly to the fact that this formula refers to a definite *point of time*. Amount of commodities and amount of money are both ideas which do not contain any element of time, and can therefore only be conceived at a given moment. But if we do thus refer the ideas strictly to a certain moment, we cannot explain why the money should purchase the total amount of commodities. The process by which this purchase is effected takes time. If we consider the outcome of the process, it is clearly necessary to assume a certain *period of time* as the basis of the inquiry. The commodities which are bought within this period must be paid for with the money that is in actual circulation. And this alteration of the principle introduces a new difficulty into the problem: when we consider a period of time, it is always possible that in this period several payments are made with one and the same piece of money. The extent of the payments will then no longer be measured by the quantity of the money alone; we must take into account also the number of the payments which are effected within the period by each piece of money. We thus come to the idea of the *rapidity of circulation* of money. This idea, which is not very clearly expressed in most works, is most simply defined by assuming that all pieces of money are used in the period equally frequently for payment. If V stands for the number of the payments which are effected in the period by each piece of money, and T again represents the amount of the commodities purchased in the period, the quantity theory would then be expressed in the formula

$$TP = MV$$

This equation, which must properly refer to the entire number of payments, not merely the purchases of commodities, T being taken as a measure of the real exchange, means that the extent of the payments that are to be effected within a certain period is equal to the possible payments performed by the given quantity of money within the period.

In general, naturally, this absolutely uniform use of all the pieces of money is out of the question. The payments performed by the amount of money is, in reality, equal to the sum of the payments performed by the several pieces of money, the payments performed by each piece being determined by its face value multiplied by the number of the payments it effects within the period. If we make the face value of each piece m and the number of payments effected by it v, the total payments performed will be expressed by the sum Σmv. We can then define an average rapidity of circulation of the money by the equation $V = \frac{\Sigma mv}{M}$, or by dividing the total work of the money by its amount. Here, however, we assume that the amount of money remains unchanged during the period in question. We must bear in mind that the total work of the quantity of money refers to a certain period, whereas the quantity of money itself must be referred to a certain moment. A comparison of these two figures tacitly assumes that the quantity of money remains unchanged throughout the period. If this is not the case—as it never is in reality—the average rapidity of circulation of the money can only be defined by taking a fictitious period, instead of the real one, in which everything has remained the same, and comparing the work of payment done in this period with the quantity of money at the beginning of the period. The result clearly gives an average rapidity of circulation at the beginning of the period.

The rapidity of circulation of money represents, in a sense, an independent factor in the problem of the fixing of prices. How often a coin can be used for payments in a given period depends upon the habits of the people in regard to the use of cash, the stage of development of the system of exchange, the density of the population the efficiency of transport, and so on; in a word, upon factors which must be taken for granted when we are dealing with the theory of money. This does not, of course, exclude the possibility of changes in the general level of prices or the quantity of money having a certain influence upon the rapidity of circulation of money. When this rapidity of circulation is said to be an independent factor, we mean only that it has independent causes which lie outside the problem of the fixing of prices.

We may conclude that in its present form the quantity theory has a very definite meaning and a positive substance. This substance would be wholly lost if we attempted, as Stuart Mill does,* to omit the element of time, and to substitute for the rapidity of circulation a working capacity of money which would have to be defined as the ratio of the total payments effected and the quantity of money. For in that case the quantity theory would merely affirm that the total amount of payments effected is equal to the amount of money multiplied by this working capacity of the money, and it would thus be reduced to a mere identity of no consequence whatever.

The substance of the quantity theory is always that the existing quantity of money must involve a definite performance of payments, to which the level of prices is obliged to adjust itself. In the original quantity theory this view is expressed in the principle that the entire amount of existing money purchases the amount of commodities. In the present form of the quantity theory this supposition is generally replaced by the assumption that the rapidity of circulation of the money is constant. This means that in the unit-period there must be a definite work of payment defined by the quantity of money. It is, therefore, of the essence of the quantity theory to seek to trace changes in the general level of prices to changes in the quantity of money.

But if the quantity of money is thus conceived as an independently effective factor in the fixing of prices, it is naturally necessary to take the quantity of money itself as given in certain objective conditions outside the fixing of prices, or at least as determined simultaneously by those conditions. The task of assigning the reasons for the general level of prices or of the value of money is clearly not accomplished until we have reached the factors which can be regarded themselves as objectively given elements of the problem.

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* *Principles of Political Economy*, Book III., ch. viii., § 3.

In regard to the quantity of money it is in this respect to be noted that the quantity theory grants only the quantity of money in circulation an influence upon the fixing of prices. But this amount of circulating money is not an independently determined magnitude, as its limits are never firmly marked off from the quantity of money lying in the bank-reserves or private hoards of money. The money passes from store into circulation and back according to the daily requirements of business. To say that the quantity of money in circulation determines the general level of prices has in these circumstances no proper meaning. The general level of prices is, rather, one of the factors which determine the quantity of money in circulation at any one time. To this extent the quantity theory leaves quite open the question of the causes which determine the value of money.

If we are to trace the movements of the general level of prices to objectively given factors, we must clearly bring the general level of prices into connection with the *whole* quantity of money. We can do this by making M in the equation $TP = MV$ stand for the whole quantity of money, when V stands for the rapidity of circulation of this quantity of money, or the paying capacity in the period per unit of the whole quantity of money. If we compare two cases in which this paying capacity of the money is the same, and in which the extent of the real exchange T is also the same, we may say that the general price-level P is directly proportional to the quantity of money M.

This principle has a definite meaning when the total quantity of money can be regarded as a given magnitude.

This is the case under a paper-standard, where the State has fixed the amount of paper money. If the paper money is issued in the form of bank-notes with forced circulation, the directly operative limitation of the paper money is, as we found in dealing with bank-notes, in the terms of bank-advances. Here, at all events, we come to an objective element that may be cited as a determining cause of the value of money. When there is no independent limitation of the paper money at all, the fixing of prices also becomes an entirely vague problem, and prices may, as painful experience has shown, rise indefinitely.

It is otherwise under a gold standard. In that case even the total quantity of money is not an independently given magnitude. For the quantity of money is not rigorously marked off in relation to the total supply of gold; on the contrary, the gold passes from the non-monetary supply to the monetary and back, and this movement backward and forward is kept up continuously. How much gold is applied to monetary uses may depend upon, amongst other things, the money-requirements of business, and therefore upon the general level of prices. Thus the monetary supply of gold at the time affords no objective cause for determining the value of money. To trace the general level of prices to objective causes is, in fact, only possible when this general level is brought into connection with the total supply of gold. This supply is either absolutely given or, if production is still going on, is determined by the technical conditions of production, and therefore in both cases the explanation of the general level of prices is given in objective elements. In the equation TP=MV, therefore, M must now stand for the total quantity of gold, and V for the payments effected in the period in question per unit of this quantity of gold. If we consider two cases with the same capacity for effecting payment per unit of the total amount of gold and the same real exchange, we may formulate the quantity theory by saying that the general level of prices is directly proportional to the total quantity of gold.

Up to the present we have assumed that all payments are made in money. There is still the question how the value of money is really determined when bank-notes and bank-deposits have to be taken into consideration as means of payment as well as money. A theory of the value of money which connects the general level of prices with the extent of the payments made within a certain period must clearly add to the payments in money all the payments made in bank media of payment. We then have $TP = Z_1 + Z_2 + Z_3$, in which Z_1, Z_2, and Z_3 stand for, respectively, the amounts of payments in cash, payments in bank-notes, and payments by cheque. As we previously substituted M_1V_1 for Z_1, we may now substitute M_2V_2 for Z_2, M_2 meaning the amount of notes in circulation and V_2 the rapidity of circulation of the notes. If this rapidity of circulation is assumed to be the same in the two cases to be compared, our equation shows how an increase of the circulation of notes proportionately increases the work of payment of the notes. In the same way we may substitute M_3V_3 for Z_3, M_3 being the total amount of those bank-deposits on which cheques may be drawn. As we cannot define any physical rapidity of circulation of the deposits, V_3 must be defined as the paying capacity in the period per unit of the deposits. If this paying capacity also is assumed to remain unchanged, any increase of the total amount of the deposits will proportionately add to their paying capacity. Thus the fluctuations of the general level of prices are, assuming that there is no change in the claims to payment or the use of the media of payment, traced to three variables—the quantity of money, the circulation of notes, and the amount of deposits.

These variables are, however, not entirely independent. The amount of the notes and deposits is commonly regulated, given a certain quantity of money, by the terms on which the banks make advances. These terms thus become an independent factor in the settlement of prices. Hence, on the aforesaid assumption, the determination of the general level of prices might be traced to two factors: the terms of bank-advances and the quantity of money in circulation. But since under a gold standard the amount of money in circulation is not an independent variable, but is to be related to the total quantity of gold, we reach the result that the fluctuations of the general level of prices are, if the real exchange is not altered, determined by the total quantity of gold and the terms of the bank-advances as well as the effectiveness of the media of payment. This result is best formulated by returning to the original formula of the quantity theory and taking M in the equation $TP=MV$ to mean the total quantity of gold and V the total paying capacity in the unit-period per unit of this quantity of gold. The most important factors in this relative paying capacity are, clearly, the more or less extensive use of bank media of payment and the associated use of the gold reserves of the banks and of the entire supply of gold for purposes of payment. These two factors are at all times essentially determined by the terms of the bank-advances. We must also take into account the fluctuations in the use of the various media of payment. If the said relative paying capacity is the same in the two cases to be considered, it follows that the general level of prices is proportional to the total supply of gold.

We will not attempt to pronounce at this stage as to the soundness of the principles formulated in this section. What we had to do here was to make quite clear what the substance of the quantity theory is under various assumptions, or, to put it more accurately, perhaps, logically must be, if the theory is to have any definite meaning. With this reservation we will now carry a step further our analysis of the theory.

In its classical form it connects the value of money with the extent of payments. We have given the theory here in this form. But this way of looking at the matter is not necessary. We can also consider the value of money in its connection with the demand for cash, for money, at the time. There is between the two methods a difference in regard to the temporal limitation of the problem: the amount of the payments is necessarily related to a certain *period*, and the demand for cash to a *point* of time. For a theory which sets out to explain the dependence of the value of money upon its quantity it is quite natural to have in mind a definite moment, for the quantity of money itself is bound up conceptionally with a definite point in time. In order to be able to effect a certain amount of payments in a certain unit-period the system of exchange needs, given certain customs of payment, a certain store of cash at the beginning of the period. There is, therefore, a definite connection between the demand for money at one moment and the payments effected in the following unit-period, and it is quite natural for the theory of the value of money to be able to start either from the demand for money or its paying capacity.

Hence if we wish to study the value of money in connection with the demand for money, it is natural to treat the problem as we have treated the general problem of the fixing of prices (Chapter IV.). The variable to be determined is in the present case the general level of prices, which we call P. This variable is for them oment taken for granted. Thereby the general problem of the fixing of prices is solved; prices are now determined as regards their absolute amounts. From the standpoint of the fixing of prices the demand for money is then determined. We assume that this demand is, all things being equal, proportionate to the general level of prices. This means that, if two independent cases are compared, when all the other factors which influence the demand for money are the same, the demand is in direct proportion to the general level of prices. The demand may then be described as the product of two factors: the general level of prices and the demand for money at a price-level selected as unit.

This demand for money at the unit price-level is a variable independent of the price-level, and depends in the first place upon the extent of the real exchange T, or the exchange measured in money at the unit-prices, and is proportional to this. Given a certain quantity of the real exchange in the unit-period—this quantity we may call 1—the demand for money at the beginning of the period is determined by the stage of development and the organisation of the monetary system. This demand at price level 1 and real exchange 1 we will call the relative demand for money, and express it as R. Hence R is equal to the demand for money at a certain point of time per unit of the work of payment in the subsequent unit-period. Generally speaking, the demand for money at any given moment is equal to the total work of payment in the subsequent unit-period, or TP multiplied by the relative demand for money R, and is consequently equal to the product RTP.

The causes of this relative demand for money have been thoroughly studied in the previous chapter. The relative demand for cash depends, according to the results we reached there, upon the concentration of the cash in the banks and the displacement of money by bank-notes in private supplies. We found that the relative demand for money is reduced at higher stages. At a given time and in a given country, however, this relative demand for money may be taken for granted.

When the demand for money is definite, equilibrium requires that the demand be equal to the total existing amount of money M, or $RTP=M$. This equation suffices to determine the unknown, the general level of prices. Thus the general level of prices is represented in its dependence upon the quantity of money and the relative demand for it; and it is found by comparing two independent cases, in which R and T are unchanged, that the general level of prices is directly proportional to the quantity of money. This result brings us back to the quantity theory.

If we now compare the equation for settling the general level of prices which we have reached with the previous equation $TP=MV$, we find that $R=\frac{1}{V}$, or, to put it differently, that the demand for money per unit of the work of payment in the unit-period is equal to the reciprocal value of the rapidity of circulation of the money, and therefore the reciprocal value of the work of payment of the unit of the quantity of money in the unit-period, which is really self-evident. Hence the two equations we have given for determining the general level of prices are identical, which is, of course, inevitable, as an unknown can only be determined by *one* equation.

The equation which states that the demand for money is equal to the supply only determines the level of prices if the quantity of money can be taken as definite. But under a gold standard the quantity of money is not sharply separated from the amount of gold. To trace the general level of prices to objective factors we must compare the total demand for money with the total quantity of gold. We have, therefore, to proceed as follows: We take the general level of prices for granted. All prices are thus settled, and the demand for gold for industrial purposes is then clearly determined, as is also the monetary demand for gold, and thus the total demand for gold. Now, this must be equal to the total supply of gold, and the general level of prices is determined by this equation. In order to keep the quantity theory intact, it may be assumed here that the industrial as well as the monetary demand for gold is proportional to the general level of prices. If this is the case, it is clear that the total demand for gold is proportional to the general level of prices, and, as this demand must be equal to the total supply, the general level of prices is proportional to the total supply of gold; which again agrees with the results we obtained previously.

The assumption that the non-monetary demand for gold is proportional to the general level of prices, and that therefore the demand for gold is in inverse proportion to the price, is not in itself improbable. For when the gold is used for making ornaments, it is mainly desired on account of its value, not its amount. Hence the unit-value of the gold must, other things being equal, be in inverse proportion to the total quantity of gold. When it has been assumed that the monetary demand for gold grows in proportion to the general level of prices, the assumption that even the industrial demand for gold is proportional to the general level of prices clearly means only that the proportion of the monetary and industrial demands is independent of thë general level of prices; in other words, that the quantity of gold is distributed in the same proportion between the two chief uses of it, independently of the size of the total amount of gold. We must, however, bear in mind that for the integrity of the quantity theory it is enough to assume that the *total* demand for gold is proportional to the general level of prices, and leave open the possibility of variations in the monetary and the industrial demand.

§ 51. THE EFFECT OF FLUCTUATIONS OF THE QUANTITY OF MONEY.

For practical monetary policy the theory of the value of money has an immediate importance, mainly in so far as it is able to explain how *fluctuations* of the quantity of money affect the general level of prices. Since John Stuart Mill's time it is customary in economic education to represent the effect of an increase of the quantity of money in the popular formula: " If the whole money in circulation was doubled, prices would be doubled.'* This principle is clearly not in the range of the results of our analysis of the quantity theory up to the present. For here it is assumed that a sudden increase of money occurs in a given national economy, and a definite statement is made in regard to the effect of this change. Thus from a comparison of two given and independent cases we come to a question in which the inner connection of the entire process of the national economy must be taken into consideration; we pass, in other words, from a problem of statics to a problem of dynamics.

In the cited formulation of the quantity theory it is necessarily assumed that all the other factors remain unchanged, and this assumption is generally made without giving any consideration to the question whether it is justified in this case. But clearly we are bound to suppose that an increase of money may have an effect also upon "the other factors," especially upon the rapidity of circulation of money and the ratio of bank media of payment and cash, possibly even upon the exchange of commodities. Hence the formula *ceteris paribus* is here absolutely unwarranted. To preach the quantity theory with this formula is to divert attention from the essential process, and it certainly does not tend to promote education in sound scientific criticism.

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* *Principles of Political Economy*, Book III., ch. viii., § 2.

As long as we consider two different and independent cases, as we have done in the preceding section, the assumption that the "other factors" remain the same is, naturally, justified, because we can choose the cases for comparison as we will. But if in a given case we suppose that the quantity of money is suddenly increased, we are not justified in making any assumptions we please about the new situation which arises. What we may assume is that no new disturbing factors come from without, but we must make no further assumptions as to the effect of the supposed increase of the quantity of money, for it is precisely that effect we have to study.

When we pass from the static to the dynamic treatment of the problem of the dependence of the value of gold upon its quantity, we confront difficulties of an entirely new order, and the methods that have hitherto been used are not competent to overcome them. Even in our treatment of the static aspect of the problem of the value of money we have found that the quantity theory is not quite so self-evident as it is sometimes supposed to be; that, on the contrary, it is necessary to prop up the theory with assumptions, and that these assumptions, though not in themselves improbable, require an investigation that lies outside the range of purely theoretical treatment and must be based upon the facts of the economic life. The resources of pure theory are still more inadequate when we turn to the dynamic problem. What effects an increase of the quantity of money has upon the rapidity of circulation of the money, the extension of the use of bank media of payment, or the proportions of the real exchange, and therefore what the ultimate effect upon the general level of prices will be, are questions which do not yield to the resources of the theory.

When one tries to form an idea of the direct effects of an increase of the quantity of money on the assumption that no other independent changes come into play, it is natural to suppose that there will be a curtailment of the rapidity of circulation of the money, a relative increase in the use of cash as compared with the use of bank media of payment, and an enlargement of the cash reserves at the banks—possibly also a greater animation of business. But all these are effects which culminate in an increase of the demand for money, and therefore provide a counterpoise to the increase of its quantity. If the demand is thus increased to the same extent as the quantity, it is clear that the effect of increasing the quantity is entirely counterbalanced, and there is no room for that action upon prices which the quantity theory assumes. If the increase in the demand is not so large, an advance of prices is to be expected, but not to the extent demanded by the simple quantity theory. The opponents of the quantity theory have repeatedly pointed out effects of this nature, which must follow an increase of money, and they have insisted that these effects are too important to be ignored, and that in reality they must always traverse the effect of an increase in the quantity of money as stated by the quantity theory. From this it has been inferred that the whole theory must be rejected as a theoretical speculation of no practical import. The defence of the theory against these attacks has generally been very feeble. Even Fisher, who so strongly advocates the quantity theory as a self-evident truth that hardly admits of any doubt, has not succeeded in representing the effects in question of an increase in the quantity of money as temporary disturbances of no great moment, and, although he brings many valuable observations to the support of this view, he is prevented by his own method from even approximately appreciating the magnitude and permanence of such effects. In the circumstances it is an open question how far the quantity theory has any practical bearing.

It is clearly beyond the resources of theory to express in quantitative formulæ the effects we suppose of an increase of money. It is equally impossible for theory to answer the question how far these effects extend into the future. At the most we may say that it is probable that their immediate effect is paramount, that they gradually lose their force, and that, therefore, an increase in the quantity of money will in the course of time lead to an advance of prices in harmony with the quantity theory. For if the effects in question are merely the result of a transition, and the quantity theory holds good for two quite independent cases, it is to be expected that the prediction of the theory will be all the more surely realised the longer the period of transition is, and the more the two cases to be compared can be regarded as independent of each other. These statements, however, have no real force as proof. They merely show how necessary it is to treat the whole theory of the value of money empirically on the basis of facts systematically put together for the purpose.

An inquiry of this sort has first to establish the changes in the general level of prices for a certain period and then try to analyse the probable causes of these changes. For this we have to find the available statistical data as to the quantity of money, the displacement of it by the use of bank media of payment, and the extent of the real exchange, and to compare these properly with the general level of prices. The inquiry must be conducted with a special regard to the gold standard, which is by far the most important case in the modern world-economy. As under a gold standard the quantity of money is not sharply marked off from the quantity of gold, and is therefore not an independent magnitude, it is necessary, as we have said, to compare the development of the general level of prices with the development of the total quantity of money in order to test how far the changes in the general level of prices can be traced to changes in the quantity of money, and what variations of the general level of prices remain to be explained by the action of the other variables in the problem.

That will be the course of the following inquiries. First, therefore, we have to consider the methods of ascertaining the changes in the general level of prices.

§ 52. Measuring the Price-Level by Index Figures.

The constant movement of prices may take the form either of a change of all prices (or at least the greater part of them) in one and the same direction, or a number of changes of different prices relatively to each other without any appreciable shifting of prices in general in a definite direction. It is only the first type which we regard here as a change in the value of money; movements of the second type are obviously possible without any change in the value of money. In point of fact, the two kinds of movements always occur simultaneously. But in a study of the value of money it is necessary to distinguish between the two, and ascertain whether and to what extent there has been a general shifting of prices in a definite direction or, to borrow a figure from the science of mechanics, a shifting of the centre of gravity of the prices. This is the task we try to accomplish by getting out index figures for the general level of prices.

In order to make an index for these general and one-sided movements of prices, and therefore for the general level of prices, we have first to select a group of representative prices, as it is clear that we cannot possibly take all prices into consideration in such a calculation. We must further confine ourselves to typical standard articles, for which a practically unchangeable quality may be postulated. This condition at once excludes retail prices, because, amongst other reasons, the conditions of sale (sending out the goods, credit, etc.) vary considerably. Generally speaking, we must avoid the prices of finished products, as they generally vary a good deal in quality. Non-material utilities cannot, as a rule, be taken into consideration. Rents, for instance, even when paid for the same house, are the price of a utility of very varying real substance, as the locality may be more or less modern, central, easy of access, etc. Wages must not be taken into account, because, as the share of the worker in the total amount of the national production, they normally rise, even when the prices of commodities do not, in an advancing economy. We must therefore confine ourselves to a consideration of the wholesale prices of the chief articles of world-trade.

In order to get an idea of the movements of the general level of prices expressed in *gold* from the middle of the nineteenth century to the outbreak of the war, we shall probably find Sauerbeck's index sufficiently reliable. We give the preference to English figures in this connection for three reasons. First, because in the period with which we are concerned, since the middle of the nineteenth century, England was in the main a free-trade country. Secondly, the English market during this period was above all others the world-market of commerce. Thirdly, England maintained an effective gold standard throughout the period. This last circumstance is, naturally, of decisive importance in connection with the question with which we are chiefly concerned—the influence of the world-supply of gold upon the value of money under a gold standard.

For these reasons we take Sauerbeck's index figures as the basis for the following inquiries.* In order to get an approximate idea of the development of the general level of prices throughout the whole of the nineteenth century we will add to the series of Sauerbeck's index figures, which begins at the year 1846, the figures which Jevons compiled for the period 1800–1845.† Jevons's index figures extend as far as 1865. Hence the two series overlap for the twenty-year period 1846–1865. The

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* They are given in the Appendix, Table I.

† *Wholesale and Retail Prices* (1903), p. 450.

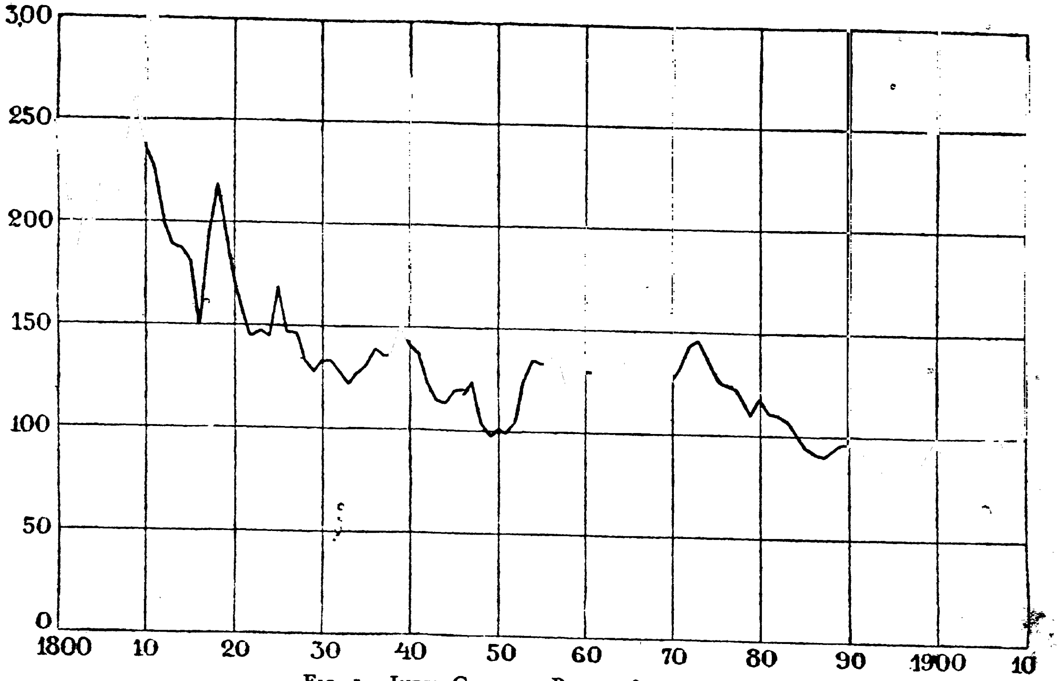

Fig. 1.—Index-Curve of Prices 1800–1910.

average figure for this period is in Jevons 75·3, in Sauerbeck 93·1. Perhaps the two series may best be put together on a single diagram, if we choose a scale that will bring these average figures into agreement.

When we study the Sauerbeck index figures we are struck at seeing that the general level of prices was nearly the same height in the years 1850 and 1910. The index figure for 1850 is 77, that for 1910 is 78. In such a comparison, however, it is important that we do not simply take two isolated years, but consider also the subsequent years. We find that the average of the index-figures for the four years 1848–1851, which follow the crisis of 1847, is 76, while the corresponding average for the four years after the crisis of 1907 (or for 1908–1911) runs to 76¼. Thus the agreement between the general level of prices in the year 1850 and the same in the year 1910 is very marked. We take this common level as the normal level, and call it 100. The scale of Jevons's index is so adjusted to this scale that the average figures for the period 1846–1865 suit both series.

Our diagram (Fig. 1) has been constructed on this basis. All the figures for the general level of prices are expressed in percentages of the normal level, which corresponds to Sauerbeck's 76.

§ 53. Price-Level and Relative Quantity of Gold.

We have found that the analysis of the factors which cause changes in the general level of prices, when we take the gold standard into consideration, cannot stop at the quantity of money, but must go on to the whole quantity of gold in the world. Here, therefore, it is first necessary to make a general survey of the development of the world-supply of gold. The entire supply in the year 1850 may be put at 10,000,000,000 marks. If Lexis is approximately correct in putting the entire supply for the year 1848 at 9,560,000,000 marks,* the above figure may be accepted for 1850 (at the end of the year). In calculating the subsequent increase of the gold-supply we must, according to Lexis, assume a total yearly loss of 2 per 1,000 of the total supply at that time. Production has been taken into account for the period from 1851–1875 in five-year totals and for the later period in annual returns (according to Helfferich and the *Statistisches Jahrbuch für das Deutsche Reich*). For the five-year periods the loss from wear is taken as equal to 1 per cent. of the total supply at the beginning of the period. After 1875 the annual loss of gold is put at 2 per 1,000 of the supply at the beginning of the year. For the period before 1850 production is, for the sake of continuity, taken off in ten-year periods from the gold-supply in 1850, 2 per cent. for each period of the supply at the beginning of the period, and 2 per cent. of the half production of the period, being added to the supply at the beginning of the period. The figure we get in this way for 1800 (7,535,000,000 marks) is rather lower than the figure given by Lexis (7,940,000,000 marks), but the difference is of no consequence. For 1890 Lexis adopted the figure of 28,560,000,000 marks, whereas our calculation gives the figure of 28,775,000,000 marks.

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* *Handwörterbuch der Staatswissenschaften* (II. Aufl.), article "Gold und Goldwährung."

The result of our calculations is given in the Appendix, Table II. ("The World's Gold-Supply"), under the title "Actual Quantity of Gold," and is graphically shown here in a diagram (Fig. 2). On our method of calculation the figure for each year gives the gold-supply at the end of the year.

We find that the actual gold-supply for 1850-1910 rose from 10,000,000,000 to 52,000,000,000 marks, or was multiplied 5·2 times in sixty years. This rise means an average annual rise of 2·79 per cent., or, in round numbers, 2·8 per cent. Hence if the gold-supply had increased annually from 1850 onward by 2·8 per cent., it would by 1910 have risen to the effective gold-supply of that year.

Passing on now to compare the evolution of the general level of prices for a longer period with the contemporaneous increase in the world's gold-supply, we have first to notice that the general economic develop-

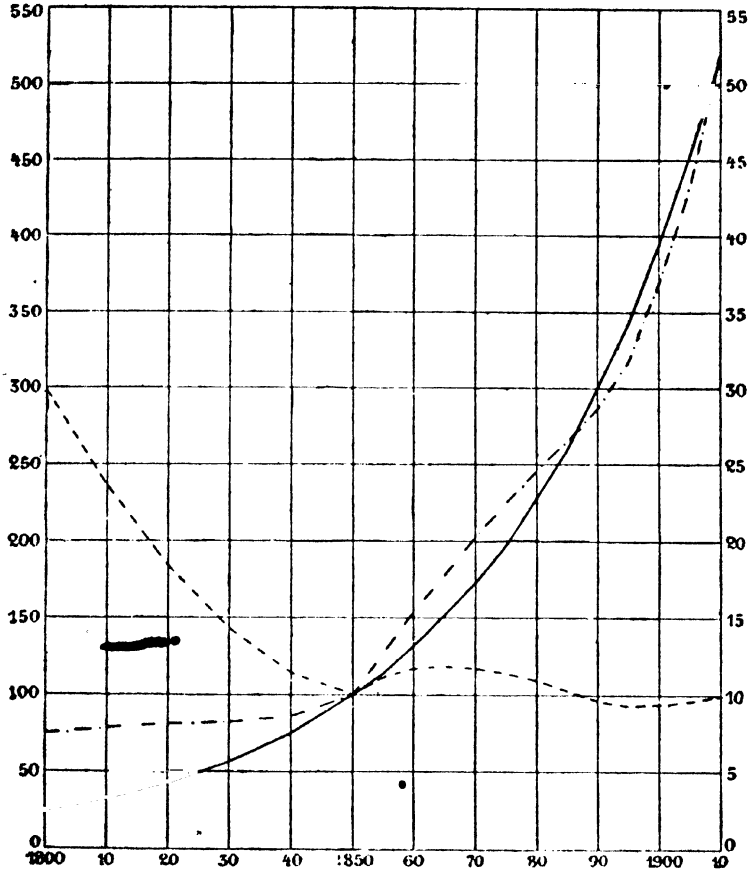

Fig. 2.—Actual —.—.—, Normal ———, and Relative ----- Gold-Supply of the World.

ment makes room for a certain increase of the gold-supply, and that this increase cannot be a cause of changes in the general level of prices. To ascertain the effects of the variations of the gold-supply upon the general level of prices we must first know what increase of the gold-supply was necessitated by the general economic development during the period in question. For this purpose it will be an advantage if we can select the period in such wise that the general level of prices is the same at the beginning and the end of it. For in that case the increase of the gold-supply during the period as a whole has clearly had no influence on the general level of prices, and the increase merely corresponds with the increase of the gold-supply necessitated by the general economic development.

These conditions are, as we found in the preceding section, fortunately realised in the period 1850–1910. The general level of prices in 1910 was, taken practically, the same as in 1850. We may conclude from this that the increase of the gold-supply from 1850–1910 was necessary and sufficient, in view of the economic development, to keep prices on the same level in 1910 as they had been in 1850. This increase meant, as we found above, an average annual increase during the whole period of, roundly, 2·8 per cent. Now, if the world's gold-supply had grown by exactly 2·8 per cent. during each year of the period, it is clear that no one could have thought of ascribing the fluctuations of the general level of prices to fluctuations of the gold-supply. We should in that case have had an absolutely uniform increase of the world's gold-supply, and this increase would have sufficed to keep prices at the same level at the end of the period as at the beginning. It could then neither be said that the increase of the gold-supply was on the whole excessive, nor that it had by its irregularities caused changes in the general level of prices. Such a uniform increase of the gold-supply, leaving the general level of prices unchanged at the end of a certain period, we may call a *normal* increase for the period in question, and the gold-supply at any particular point of time in the period, assuming a normal increase, may be called the *normal gold-supply*. For the period 1850–1910 we get the normal gold-supply by starting from the initial supply of 10,000,000,000 marks and calculating a uniform annual increase of 2·8 per cent. The figures of the normal gold-supply given in Table II. in the Appendix were reached in this way. (We get the figure for any year by multiplying the figure of the preceding year by $\sqrt[60]{5{\cdot}2}=1{\cdot}0279$.)

The normal gold-supply calculated in this way for the period 1850–1910 is indicated on our diagram (Fig. 2) by the continuous line. The calculation is carried back as far as 1800 by the same formula, and the curve on the diagram is correspondingly extended.

It follows from what we have said that, as far as the changes in the general level of prices in the period 1850-1910 may be generally traced to changes in the gold-supply, they may be ascribed entirely to the divergence of the actual gold-supply from the normal. Had there been no such deviations, there would, as we said, have been no temptation to ascribe changes in the general level of prices to fluctuations of the gold-supply. We need not hide the fact that this question is largely a matter of definition. It can always be said that changes in the general level of prices, at least as a whole, need not have occurred if the gold-supply had been kept at a certain level. In this way any change in the general level of prices could be traced to the gold-supply. But this idea of causation would satisfy nobody. If other factors have an influence on the general level of prices, and in conjunction with the gold-supply determine it, variations of these factors are regarded as independent causes of variations of the general price-level, even when their action may be compensated for by counteracting variations of the gold-supply. If we are to ascribe to each of the different factors a definite share in the changes of the general price-level, it can only be done by considering a certain development as normal for each factor in the period in question, bearing in mind that the general price-level must remain unchanged as long as all the factors remain normal. It is this determination of the normal development which we call a matter of definition. And for the development of the gold-supply it would be difficult to give a definition of the normal which would be more natural than the one we have given.

If we agree, then, to regard an increase in the gold-supply in the period 1850–1910 of 2·8 per cent. annually as normal, in the sense we have explained, we must logically conceive every deviation of the effective gold-supply from the normal as *pro tanto* the cause of a change in the general level of prices. On our diagram these deviations of the effective from the normal gold-supply are clearly shown. From 1850–1887 the effective gold-supply is above the normal; from 1887–1910 it is below. In the first period, therefore, we should expect a rise in the general level of prices above the normal level, and in the second period a fall below it.

In order to be able to compare the deviations of the effective gold-supply from the normal directly with the development of the general price-level, we give the effective supply in percentages of the normal. The ratio of the effective and the normal gold-supply, which we call the "relative gold-supply," is given in figures in Table II. in the Appendix, and is represented in the diagram (Fig. 2) by the broken line (– – –). This relative gold-supply rises, as we see, about the middle of the sixties to a maximum of 1·18, or 18 per cent. above the normal level, and falls in the years 1896 and 1897 to a minimum of 0·92, or 8 per cent. below the normal level.

To get an approximate idea of the gold-supply before 1850, I have also calculated the relative gold-supply for the first half of the nineteenth century and indicated it on the diagram. One must bear in mind, however, that the figures for this earlier period have not the same value as the figures for the later period, as the normal gold-supply in the strict sense is only defined for the latter period.

Now let us put together the curves of the relative gold-supply and the general level of prices on a special diagram (Fig. 3). A single glance at the diagram is enough to recognise a general agreement between the general price-level and the relative gold-supply. But it is remarkable that the general level of prices is subject to variations of two different kinds, which must be distinguished as " secular " and " annual " variations of the price-level. The secular variations are, as a rule, associated with the contemporary variations of the relative gold-supply, although the secular price-level in the period 1850–1880 is clearly rather higher, and in 1890, perhaps, rather lower, than it ought to be according to the relative gold-supply. In any case our comparison is enough to prove that for the period under consideration (1850–1910) *the main cause of the secular variations of the general price-level lies in the changes of the relative gold-supply*, and that the quantity theory is right to the extent that the general price-level, though it is also influenced by other factors, is directly proportional to the relative gold-supply. This real connection could not be recognised as long as, in comparing the general price-level with the gold-supply, writers were content with vague surmises about the sufficiency or insufficiency of the gold-supply. It is only when we settle the idea of the normal gold-supply that the question of the dependence of the general price-level upon the gold-supply has a definite meaning, and the answer is at once given by a correct examination of the facts.

The diagram further teaches us that the general price-level is also subject to *annual variations*, but *these have no connection with the gold-supply*. This is a very important result; it compels us to look for the causes of these variations in other factors, and we will proceed to do so. Even on the ground of general theoretical considerations we said at an earlier stage that it was probable that variations in the gold-supply only show their full effect in proportional changes of the general price-level in the course of time, and that at first other forces would predominate. This is now confirmed. The relative gold-supply mainly controls the secular fluctuations of the

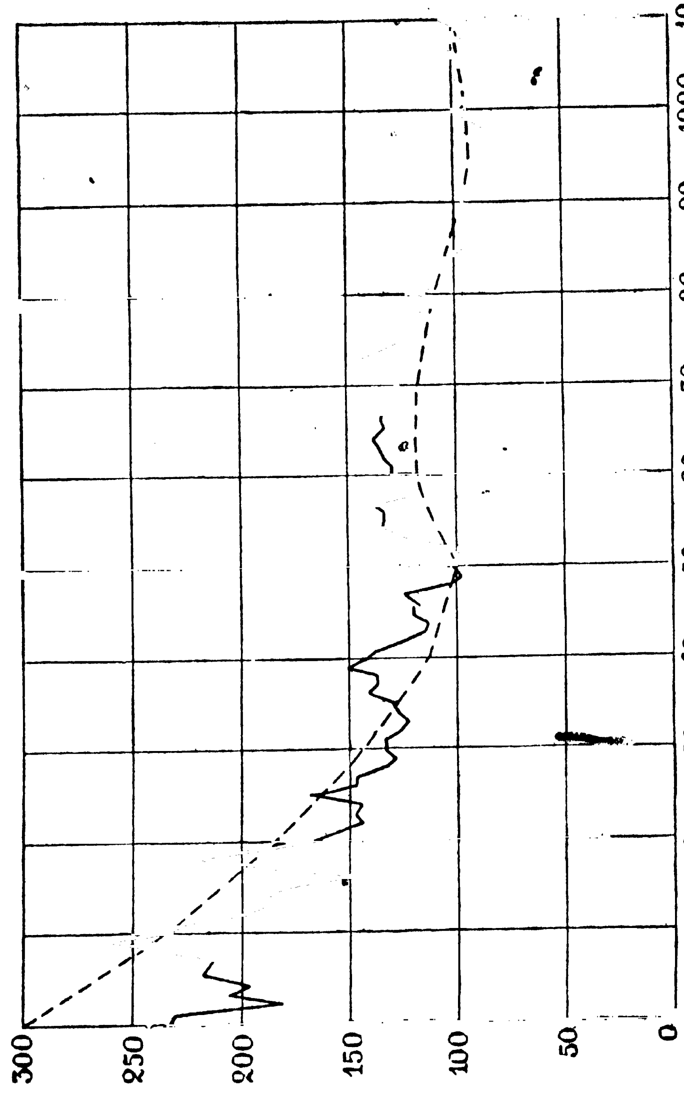

FIG. 3.—GENERAL LEVEL OF PRICES AND RELATIVE GOLD-SUPPLY.

general price-level, but it has no influence on their immediate movements.

The deviations of the relative gold-supply from unity show how much of the departures of the actual price-level from the normal may be ascribed to changes in the gold-supply. Of the considerable rise in the general price-level in the sixties, amounting to about 30 per cent., a rise of about 18 per cent. can be explained by the abundant supply of gold. The much-discussed scarcity of gold in the nineties is responsible for a fall of the general price-level below the normal of 8 per cent. From the standpoint of the gold-supply the general price-level in 1886–87 ought, as the relative gold-supply passed the value unity, to have stood at a normal level. This, however, would only be the case if the secular variations of the price-level alone, apart from the annual variations, were taken into consideration. The years 1886 and 1887 fall in a period of depression, and it is therefore to be expected that the general price-level of this period will be abnormally low, as is the case on our diagram. But a curve indicating the secular variations of the price-level would, obviously, cut across the normal level (100), about the year 1886. This observation is important in the sense that it shows that the gold-supply which we have defined as normal is normal in the same sense for the periods 1850–1886 and 1887–1910; an increase of the gold-supply by 2·8 per cent. annually would have left the secular price-level in both periods unchanged. Here we have a good test of the reliability of our method and our statistical material.

In regard to the trustworthiness of the material we may make the following observations. The least reliable figure in our statistics is, of course, the estimate of the gold-supply of 1850 at 10,000,000,000 marks. If we suppose that there has been an error of 5 per cent. in this calculation, and that the real gold-supply was 10,500,000,000 marks, this would mean that the normal increase of the gold-supply was 2·72 instead of 2·79 per cent.; which makes very little difference. If we take the figure of 10,000,000,000 marks for 1850 as correct, an error in the estimate of the gold-supply for 1910 of 1,000,000,000 marks would mean an error in the growth-factor of the normal supply of only 0·03 per cent. (for instance, 2·82 instead of 2·79). If we take the curve of the normal gold-supply as settled, an error in the estimate of the actual supply at any time of 100,000,000 marks toward the end of the period would cause an error in the relative gold-supply of 2 per 1,000, and would be of no consequence whatever. On our diagram an error of this kind would entail only a quite invisible shifting of the relative gold-supply by a fraction of a tenth of a millimetre. We may, therefore, assume that the figure 2·8 per cent. indicates pretty accurately the real growth-factor of the normal gold-supply in the period 1850–1910, and that our curve of the relative gold-supply gives, on the whole, an accurate picture of the real development of the gold-supply.

For the period before 1850 the curve is merely intended to indicate the general tendency of the development. This, however, is enough to bring out the sharp bend which the curve makes in the year 1850, thanks to the great discoveries of gold about the middle of the century, and which is accompanied by a strikingly parallel turn of the secular line of the curve of the general level of prices, so that the inner connection of the two movements is put beyond doubt.

Even if our figures were uncertain within somewhat broader limits, it seems decidedly better to give a quantitative representation of the real condition of the gold-supply by a proper treatment of the available material than to appeal to vague feelings upon which it is usual to act in the various manuals, according to bias in one or other direction, by piling up suitable adjectives.

For the general level of prices to remain steady it is, in accordance with what we have said, necessary (as far as the gold-supply is concerned) that this supply shall increase by 2·8 per cent. annually. It is immaterial what size the gold-supply is. If for a time it is higher than the normal, and the general price-level is correspondingly above the normal, a 2·8 per cent. annual increase of the gold-supply will keep the general price-level at the same height, but a slower increase of the gold-supply will gradually depress the general level of prices. On the other hand, an increase of more than 2·8 per cent. will be enough gradually to raise a price-level that has fallen too low.

And as the average annual loss of gold may be put at 0·2 per cent. of the supply, an annual production of 3 per cent. of the supply at any time is a condition for the maintenance of the general price-level unchanged, as far as the gold-supply is concerned. Thus we have secured a firm basis for estimating the sufficiency of the production of gold, a question which is usually discussed in vague general phrases, the gold-output being described as "too small" or "enormous," or an attempt being made to impress the reader by giving the size of the absolute figures.

Year.	*Normal Gold-Supply.*	*Normal Gold-Production.*
1910	52,000	1,555
1911	53,451	1,598
1912	54,942	1,643
1913	56,475	1,689
1914	58,051	1,736
1915	59,671	1,784
1916	61,336	1,833
1917	63,047	1,884
1918	64,805	1,936
1919	66,611	1,988
1920	68,466	2,042

Our calculations, taken strictly, only apply to the period 1850–1910, and cannot claim to be valid for all future time. It is permissible, however, to regard as normal a gold-supply for the next decade calculated by the same formula.* We may thus indicate what amount of gold-production would be necessary in this period to keep the general price-level at normal. In the table on p. 451 we give the normal gold-supply and the normal gold-production for the years 1910–1920 (figures in millions of marks). The normal gold-supply is calculated by multiplying in each case by the factor of 1·0279; the normal gold-production is equal to the growth of the normal gold-supply with an addition of 0·2 per cent. of the supply to compensate for loss.

The actual gold-production is at present much higher than the normal, as will be seen from the following table, and the consequence must be a rise in the general level of prices. The extent of this rise is found by calculating the relative gold-supply.†

Year.	*Gold-Production.*	*Actual Gold-Supply.*	*Relative Gold-Supply.*
	m.m.	m.m.	m.m.
1910	—	52,003	1,000
1911	1,938	53,837	1,007
1912	1,959	55,689	1,014

We see that the rise was about 7 per 1,000 in each of the two years 1911 and 1912. Therefore the corresponding rise in the general level of prices must be put to the account of the excessive production of gold. In reality the rise in prices was much greater. The Sauerbeck index figures for the years 1909–1912 are 74, 78, 80, and 85. It appears that this rise in prices is chiefly due to other causes. There can be no doubt that the conjuncture which begins in 1911, and is very pronounced in 1912, is mainly responsible for the rise in prices.

According to what we have said, the gold-production in 1911 and 1912 was too high. But if production had remained at the same level, it would first become normal, then below normal. The normal production, that is to say, increases by 2·8 per cent. every year. Already in 1918 a gold-production of 1,938 million marks (the 1911 production) would be normal, and in 1919 the 1912 production would be inadequate. As the actual gold-production in 1910 exceeded the normal, and will continue to exceed it for several years if it is not altered, the actual gold-supply must exceed the normal in the immediate future, and therefore an amount of 3 per cent. of the actual gold-supply must exceed the normal gold-production we have calculated. Hence the gold-production that is required at any time to maintain the price-level unchanged must rise in the immediate future, if the actual gold-production remains unaltered, and must soon, probably about 1917, reach this effective gold-production. Then the rise in prices must cease, and must be gradually replaced by a fall of the general price-It must, of course, be several years before the general price-level can be brought back to the normal level of 1910.

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* I leave the calculations in the form in which they were made before the War.

† The figures of gold-production are provisional (*Stat. Jahrb. für das Deutsche Reich.*, 1914).

Calculations of this kind are useful in giving us a basis for estimating the sufficiency of the actual gold-supply. It was the general opinion before the War that the gold-supply was so abundant that there could be no question of scarcity for an indefinite period. Those who held this opinion forgot how considerable the requisite production was, and, especially, how quickly it grew. We can say nothing definite about the production of gold in the future. But what we can do and—if we want something more than vague sentiments on the question of the probable gold-supply—must do, is to form a quantitatively definite idea of the actual world-demand for gold and of its normal increase. It is only by comparing the presumable gold-supply with this demand that we earn the right to pass an opinion upon the sufficiency of the gold-supply.

We say that a gold-production of 3 per cent. of the actual gold-supply at any time is needed to keep the general price-level unchanged, and this means that the actual supply must, if the price-level is to be steady, be thirty-three times as large as the year's output of gold. In literature on the subject we repeatedly find it stated that the general price-level is at present fairly stable because the gold-supply that has accumulated for centuries has grown to an extent that is enormous in comparison with the annual production; or, in other words, that the annual production is insignificant in comparison with the accumulated supply. Statements of this kind are as superficial as they are misleading. In reality the stabilisation of the price-level does not, as we saw, require that the supply of gold shall be " enormous " in proportion to the annual production, but that it shall be thirty-three times as large, neither more nor less. According to the prevailing view the stability of the general price-level ought to be still greater if the annual production remained the same and the supply were twice as large as it is. This is clearly false, for on this supposition the relative annual production would be only half as large as it now is, or little more than half the normal annual production, and the general price-level would fall fully 1 per cent. yearly with it, and so be anything but stable.

We must bear in mind that the results of this section refer mainly to the period 1850-1910 and the evolution of the world-demand for gold during that period. To apply these results to the future is only possible on the assumption that the demand develops as it has done during the period in question. But we must point out that it is possible that the experiences of the Great War may considerably modify our idea of the importance of gold, especially as regards its circulation and the great central reserves, and that in consequence of changes in the demand on this account there may be appreciable changes in the value of gold and the general level of prices.

§ 54. PRICE-LEVEL AND COST OF PRODUCTION OF GOLD.

For classical economics, which gave the cost of production a fundamental position in its theory of value, it was natural to try to trace even the value of money to the cost of production of the precious metals. The ratio of value of these metals and the remaining commodities is based, according to Adam Smith, on the ratio of the amount of labour that is required to bring a certain quantity of gold and silver into the market and the amount needed to bring in a quantity of other commodities.* This argument, which was also adopted by Ricardo, as he, in harmony with his general theory of value, defined the value of the precious metals as proportional to the quantity of labour needed to produce them,† was combined by Mill with his quantity theory in such wise that he taught that the quantity of gold does, in fact, control the price of gold on the market at the moment, but the normal price must in the end be determined by the cost of production of gold.‡

This theory of the determination of the value of money—and therefore, under a gold standard, of the general price-level—by the cost of producing gold, which is often put forward as a self-evident and final solution of the problem, has the same defect as the general theory of cost of production. First, there are, as a rule, no definite costs of production. If, further, we imagine the speculative case that gold could only be produced at a certain definite cost-price, there is no reason why this price could not be lower than the market-price; if, that is to say, the resources of production are sufficiently limited. In that case the producers, being monopolists, would make a considerable profit. On the other hand, it is just as possible to conceive the cost of production being greater than the market-price, in which case, clearly, no gold can be produced. In reality, there is a whole series of possibilities of production with different costs, and the series may be regarded practically as continuous. If, having regard to this, the idea of cost of production is replaced by the idea of "marginal cost of production," we must observe once more that this cannot be regarded as the determining cause of the price, as the extent of the production, and therefore the marginal cost of production itself, are equally determined by the price. It is, of course, true that there is a certain connection between the possibilities of producing gold and the value of the gold, and therefore between the possibilities of production and the general price-level. When the general price-level rises, the cost of the production of gold (reckoned in money) rises, while the nominal price of gold remains the same. The result is a restriction of the possibilities of profitable production and therefore of total production, which leads to a greater scarcity of gold, and a further rise of the price-level is prevented.

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* *Wealth of Nations*, Book I., ch. v., and Book II., ch. ii.

† *Works* (ed. McCulloch), p. 213.

‡ *Principles of Political Economy*, ch. ix., § 3.

How, then, are we to connect the effect of the cost of production with the effect of the existing gold-supply, and how is the general level of prices determined by the combined influence of these two factors? The question is best answered if, consistently with our general theory of the settlement of prices, we regard the general price-level as an unknown quantity in the equation which expresses that the demand for gold must be equal to the existing supply. If the existing supply of gold is definite, the general level of prices is settled. If, on the other hand, the gold-supply is increased by production, the conditions of production have an influence on the general price-level, which is in our equation brought into its due connection with the influence of the demand and the supply. If, that is to say, the general level of prices is taken as settled, then the demand for gold and the extent of the production and supply of gold also are determined. Equilibrium requires that the supply shall be equal to the demand, and therefore the quantity of gold must increase in the same ratio as the demand when the price-level remains unchanged, and this settles the general level of prices.

We are now in a position to indicate accurately the influence of the conditions of production upon the general level of prices and show it in figures for the present time. If the conditions of production are such that on the current price-level the output of gold is of such volume that it corresponds to 3 per cent. of the existing supply at any time, we have equilibrium, and, as far as the gold-supply is concerned, the general level of prices remains undisturbed. But if the opportunities for production are so good that the output of gold on the current price-level exceeds 3 per cent. of the actual supply on hand, the general price-level rises, and in a percentage which corresponds to the extent to which the ratio of gold-production and gold-supply exceeds 3 per cent. On the other hand, the general price-level falls if the conditions of production on current prices do not permit a gold-output of 3 per cent. of the supply.

Thus the effect of the production of gold upon the general price-level is based upon *the quantity of gold that can be produced on the current price-level*, not on the "cost of production," which is very vague.

The quantity of gold that can be produced on the prevailing prices at any time naturally depends upon the price-level; it rises when the price-level falls, and *vice versa*. As an increase of the gold-output tends to bring about a rise of the general price-level, and *vice versa*, the output serves to some extent as a regulator of the price-level. It is clear that this regulator will be the more effective the closer the dependence of the gold-output upon the price-level is. The extent of this dependence is measured by the increase of the gold-output at any time in consequence of a definite fall in prices. If, for instance, we suppose a fall of prices of about 1 per cent. would cause an increase of the gold-output of about 2, 3, or 5 per cent., the figures may be taken as a measure of the extent to which the gold-output depends upon the price-level, or, as we should prefer to put it, of the elasticity of the gold-output. This elasticity is, therefore, the ratio of a change in the gold-output brought about by a small fluctuation of the price-level and this change of prices itself. It is, on any given price-level, determined by the technical conditions of production. The greater this elasticity of the gold-output is the greater will be the effect of a change in prices upon the output, and the greater, consequently, the reaction against a change of prices. Hence the stability of the general level of prices is proportionate to the elasticity of the gold-output.

The War has very greatly reduced the value of gold, and this is expressed in the fact that in a country with a gold standard, such as the United States, prices were more than doubled. As a result the production of gold has materially decreased, but by no means in proportion to the fall in value. Hence in this respect, at least, the elasticity of the gold-output has proved very small. The conditions of the production of gold afford, as far as we can judge from this experience, very little support for the stability of the general level of prices under a gold standard.

§ 55. Price-Level and Bank Media of Payment.

As we have in the preceding section determined the effect of the relative gold-supply upon the general level of prices, it will be useful, in continuing our analysis of the factors which decide this price-level, to try to imagine how the curve of prices would have looked if there had been no divergence of the effective gold-supply from the normal during the period in question; if, in other words, the relative gold-supply during the whole period had been equal to 1. Of this we have an idea in the following diagram (Fig. 4), in which the Sauerbeck index figures divided by the relative gold-supply are indicated by the thick line. The thin line represents the general level of prices according to Sauerbeck. (For the figures on which it is based see Table I. in the Appendix.)

This reduced general price-level is, as one can see, much more even in its secular movement than the price-level itself. The annual fluctuations remain, however, and it is now our business to look for an explanation of

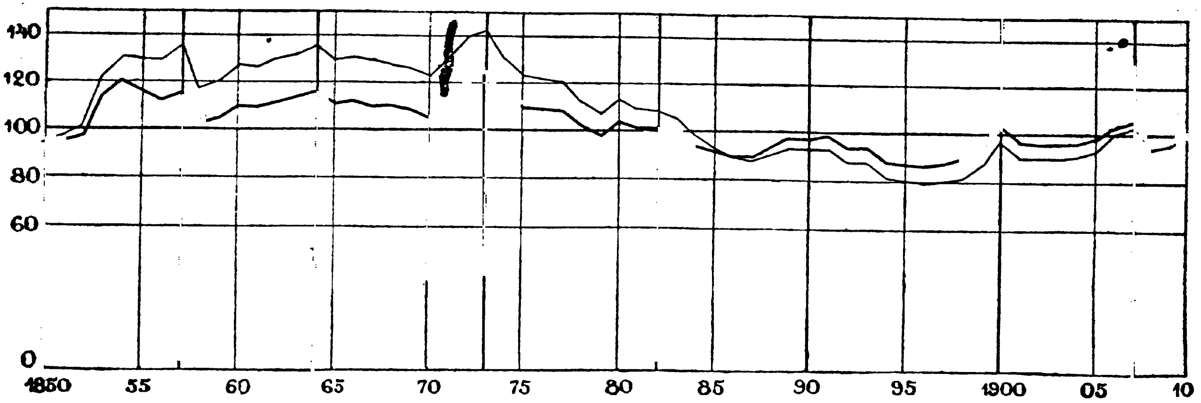

Fig. 4.—Reduction of the Level of Prices to Normal Gold-Supply.

them. Any man who knows the history of the general economic " conjunctures " in the period in question will see at once that these annual fluctuations may be traced to the variations of the conjunctures. In order to bring out this connection clearly, the years in which a conjuncture reached its height are indicated on the diagram by a thick line. A glance at the diagram shows that the peaks of our curve coincide generally with the highest points of conjunctures. The only exception is the year 1882, in which, however, the conjuncture is not very marked. Hence it is clear that there is a certain connection between the conjuncture-perturbations and the annual fluctuations of the general level of prices. Why a conjuncture leads to a rise of prices, and a period of depression to a fall, is a question which we reserve for the next Book (§ 71), where we make a special study of conjunctures; and we defer to the same stage (§ 63) the study in detail of the location of the conjunctures.

But we must state here that economic conjunctures have clearly a definite influence upon the general level of prices. Hence this level is determined by other economic factors as well as monetary.

It has long been a very disputed question whether non-monetary factors may not influence the general price-level. In opposition to the monetary theories of the value of money which we have given the objection was always raised that there are other real economic conditions that can influence the price-level. For instance, a general cheapening of the cost of production by the introduction of labour-saving machinery, a general reduction of the cost of transport by the construction of railways and the evolution of the large modern steamship, the competition of new producing countries and cheaper labour, or any other elements that make for cheapness, would bring down the level of prices; and, on the other hand, the higher wages secured by organisations of the workers, modern social and tariff policies, etc., would send prices up. Statements of this kind do not deserve the name of theories of the value of money. They entirely overlook the fact that the value of money cannot be determined without the co-operation of the decisive factors on the side of the money. A change in the general level of prices always presupposes a corresponding change of the entire payments performed, and therefore at least changes in the provision of means of payment or in the use of the existing media. When the co-operation of the monetary factors fails, when the monetary factors show independent, perhaps antagonistic changes, the ultimate effect upon the general price-level must be different.

It must always be the first aim of a theory of the value of money to establish the variations of the monetary factors and make clear the connection between these and the synchronous fluctuations of the general price-level. We have done this as regards the secular variations in showing the effect of the gold-supply upon the general price-level. This, however, does not complete the analysis of the secular variations. It is only when we take into consideration the whole of the monetary factors that we can answer the question how non-monetary general economic changes also have co-operated in the secular variations of the price-level. Before we proceed to do this, we must examine the annual variations of the general price-level and find how far they are to be attributed to monetary or other economic factors. We then at once discover the striking fact that the economic conjunctures—a group of non-monetary factors—have a decisive influence upon these annual variations. This by no means exhausts the explanation of the annual variations. Another question arises—a question that we may formulate somewhat as follows. During rising conjunctures the exchange of goods is, as is well known, considerably increased, the demand for means of payment proportionately increases, and the immediate effect would be a *fall* of prices; but if, nevertheless, there is a *rise* of prices, how will this demand of means of payment, augmented from the two causes, be met? Is this satisfaction of the demand a purely passive factor, or are there independent causes determining the supply of means of payment—

that is to say, monetary factors which set a limit to the rising demand and so counteract the influence of the conjuncture upon the general price-level? Unless the increased demand for means of payment is satisfied, causes that belong to other spheres will not be able to effect a rise of prices.

The general answer to this question can only be that during rising conjunctures the existing gold-supply is used more assiduously for purposes of payment. This may happen in various ways. The rapidity of circulation of gold coins may be increased. The quantity of gold coins in circulation may be augmented at the expense of the bank-reserves or the entire monetary gold-supply at the expense of the non-monetary. Most of all, however, new bank media of payment may be created in large quantities and used more intensively. All these changes are equivalent to an increase in the paying capacity of the existing gold-supply. If we call the paying capacity per unit of the existing gold-supply the "relative paying capacity," we may lay down the principle that the yearly variations of the general price-level are to be ascribed to changes in the relative paying capacity.

In studying the effect of the gold-supply upon the general price-level it was natural to compare the existing supply with the demand (§ 50). Here, where we have to determine how changes in the paying capacity act upon the general price-level, this paying capacity in relation to a certain unit-period must be compared with the extent of the payments to be effected in the same period. The sum total of these payments is equal to the product TP, T being the extent of the real exchange and P the general level of prices.

We have no reliable figures as to the variations of the real exchange. But we know that it increases in rising conjunctures, and at a more rapid rate than otherwise. From this we may infer that the entire volume of payments must show a sharper rise than the general price-level in rising conjunctures. In the cases where the maxima of the price-index and the real exchange wholly coincide in point of time, the increase of the total volume of payments must be particularly clear.

In order to be able to test these inferences we need some measure of the changes in the total volume of payments. In the present state of statistical science, of course, our demand for such a measure must not be pressed, but we have an index of these changes that will suit our purpose in the clearing-figures for the United States and England.

These figures may, on the whole, be regarded as a measure of payments by cheque, and in modern conditions these represent by far the greater part of all payments. For the United States and the year 1909 Fisher has, as we said previously, estimated cheque-payments at $353,000,000,000, and the remaining payments at $34,000,000,000. Hence on this estimate the cheque-payments are more than ten times as large as the remainder. And as the other payments generally have to follow the movements of the cheque-payments during the various conjunctures, we may without risk of appreciable error use the cheque-payments as an index of the whole, and therefore regard the clearing-figures as an index of the whole of the payments in the country in question. This is, of course, only permissible in regard to fluctuations of the paying capacity within short periods, or when we study the movements of the paying capacity in connection with the conjuncture-movements.

In order to get an index of the clearing business that can be directly compared with the curve of the reduced price-level, we may divide the clearing figures by the actual gold supply of each year. In this way we eliminate the influence of the secular movements of the general price-level upon the clearing figures, at least in so far as these movements depend upon the relative supply of gold. At the same time, as we shall see presently, the rise of the clearing figures throughout a whole period is eliminated, so that the annual fluctuations of the curve of clearings may be directly compared with the corresponding fluctuations of the general price-level. For this purpose it is merely necessary to give the figures of the

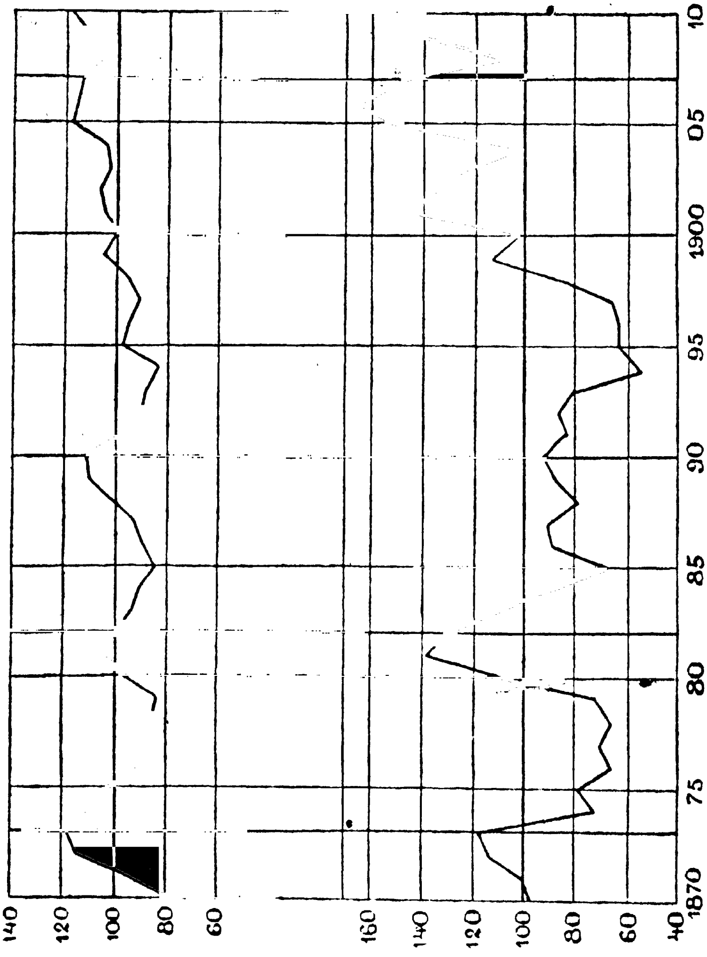

FIG. 5.—INDEX-CURVES OF CLEARINGS: LONDON ABOVE, NEW YORK BELOW.

clearings in percentages of a certain normal level. In this way the figures of the London clearings for the period 1870–1910[*] are first divided by the gold-supply of each year, and the results are expressed in percentages of the average for the whole period. This average is indicated by the number 100. The New York figures are treated in the same way.* The result is given in our diagram (Fig. 5). (For the figures see Appendix, Table III.).

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[*] *Bulletin de la Statistique générale de la France*, t. i., p. 212.

For short periods we may accept these curves as an index of the volume of payments in the countries in question. The two index-curves show, on the whole, similar movements, although the American, in accord with the much more pronounced conjuncture-movements of that country, has, on the whole, more considerable fluctuations. If we now look more closely at, for instance, the English index of payments, we find that its rises always coincide with rising conjunctures, though the highest points are sometimes earlier than those of the conjunctures. On the whole the index of payments exhibits much more pronounced movements than the reduced price-level. Where the highest point of the index of payments coincides, as it does in the year 1873 and 1890, with the highest point of the conjuncture, and agrees with the maximum of the price-level, the rise of our index also is very pronounced. The index of payments thus shows the same movements as our theoretical considerations led us to expect.

After this study there can be no doubt that the occasional rises of the price-level which we have considered were enabled by a rise of the paying capacity per unit of the existing gold-supply, and that this increased paying capacity is caused for the far greater part by the increase of bank means of payment and the more efficient use of them, as well as by the withdrawal of gold from the bank reserves and the enhanced rapidity of circulation of the current coins. By the action of the banks, therefore, the public's supply of means of payment is not merely increased in the rising conjuncture in the same ratio as the real exchange, but even more, and this leads to a general rise of prices. In the succeeding depression the fall of prices is determined by a corresponding contraction of the supply of means of payment on the part of the banks. And even if all these "annual" movements of the price-level are influenced also by other factors, intrinsic to the conjunctures, they are at all events only possible on condition that the banks suitably regulate the means of payment, and must therefore here be ascribed first of all to this regulation.

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* *Statistical Abstract of the United States* (1910), p. 570.

The regulation is itself influenced by the conjunctures, but is by no means entirely passive in regard to them. On the contrary, it is, on the whole, to be regarded as a factor that to some extent counteracts the conjuncture-movements, and keeps them within certain bounds. There is, therefore, even in regard to the annual fluctuations of the price-level, a factor on the monetary side that actively co-operates.

We may point out an incidental result of our studies in this section. A glance at the diagram shows that the English curve as a whole—that is to say, apart from the action of the conjunctures—runs almost entirely horizontally, and that therefore the extent of the clearings in London in the period in question increased at about the same average rate as, or perhaps a little more rapidly than, the world's gold-supply. The synchronous development of the entire volume of payments of the country should be about the same. We must, perhaps, assume that the circulation of other means of payment increased somewhat more slowly, but, as payments by cheque were certainly the overwhelming majority during the whole period, this cannot have had much influence on the development of the total volume of payments.

We are now in a position to obtain an approximate idea of the average increase of the real exchange in England, and consequently also of the rate of the whole economic development of the country during the period in question. For this we have only to reduce the established rise in the volume of payments to a constant level of prices; and this can easily be done, as we know that the secular price-level at the beginning of the period stood at 30 per cent. above our normal level (§ 54), and at the close of the period coincided with the normal level. The average annual rise of the real exchange in England during the period 1870-1910 works out on this principle at 3·05 per cent. The rise of the absolute gold-supply is then taken as the basis. If we notice that the increase of the volume of payments has been somewhat greater, we get a figure that is, perhaps, one or two tenths of 1 per cent. higher. This figure agrees very well with our general estimate of the rapidity of the economic development in the Western world (§ 6).

In the United States the development was unquestionably much more rapid, but on account of the variations of standard it can hardly be estimated in figures in the same way. Certain other countries have had a slower development. It is, perhaps, sound to regard the English development during the period in question as an approximate average for the whole world.

§ 56. PRICE-LEVEL AND DEMAND FOR GOLD.

As it is now settled that the annual variations of the general price-level are explained by the economic conjunctures and the elasticity which the banks give to the provision of means of payment, we may confine our attention to the secular variations of prices. The general agreement between these variations and the corresponding variations of the relative gold-supply, which we established in § 53, is at first sight to be regarded as a mere fact. But if, in accord with the general theory of quantity which we developed in § 50 and our analysis of the effect which may be attributed to the gold-supply, we assume that changes in the relative gold-supply of the world effect proportionately large changes in the prices of world-commerce expressed in gold, the secular movements of the general price-level are substantially explained.

It is remarkable that in this way the whole of the changes in the general price-level are traced to causes which, in so far as they are of a monetary nature, belong to the sphere of the money-supply, in this case particularly the gold-supply. Have, then, the great variations in the demand for gold during the period had no effect upon the general level of prices? We based our study upon English prices, because they are the prices of world-commerce, and because in England the gold standard was maintained during the entire period. We have compared the price-level thus calculated with the gold-supply of the whole world, induced by the circumstances that a gold-supply more narrowly conceived would not have provided an objectively given magnitude in the problem. It may now be asked: Would not the greatly increased world-demand for gold throughout the period have so strong an influence upon prices as to obscure the connection between the general price-level and the world's gold-supply? During the period in question all civilised countries successively adopted the gold standard, and this involved incessant new claims upon the world's gold supply. Have these claims not left their traces in the curve of the general price-level? It is natural for such questions to be asked, but our inquiry shows that they must in the main be answered in the negative. Now that we have considered the effect of the variations of the relative gold-supply and of the supply of bank media of payment to commerce, there remains only an unimportant secular variation of the general price-level to explain.

The world-demand for gold, reduced to the normal price-level, must have risen in the period 1850-1910 fairly evenly in the same percentage as the normal gold-supply, or about 2·8 per cent. annually. This figure is a little lower than that which we found to be characteristic of the general economic development of the world in the period 1870-1910. It is, in fact, not improbable that the development of bank media of payment had the effect of making the demand for gold rise more slowly than the real exchange.

We can understand this peculiar fact, as it seems to be, of the even advance of the demand for gold when we notice that a transition to the gold standard leads to by no means so rapid a rise of the demand for gold as one would, perhaps, be disposed to expect. Frequently gold was already extensively circulating in the national economy, either because of the double standard or as trade-coins, or it had been accumulated for years before by the State or by a central bank in a large reserve. In other cases the gold standard was not at once realised to the full extent, or no attempt was made to have an effective gold-circulation. In these circumstances the demand for gold as a result of a change of standard may be spread over a fairly long period. The Bank of France, for instance, recently (before the War) gradually improved the ratio of gold and silver in its metallic currency, and even bought gold for the purpose. Nevertheless, a change to a gold standard does really involve to some extent an extraordinary increase of the demand for gold in the country in question, but it has not necessarily an appreciable effect upon the world-demand if other countries in the meantime restrict their demand to a corresponding extent. For separate countries the rise of the demand is certainly by no means so even as for the whole world. A country may, for instance, be content for some time with a comparatively small addition of new gold, if payments in bank media of payment are proportionately increased. These things show how hopeless it must be to trace fluctuations of the general price-level to the gold-supply in a particular country. The country's demand for gold, determined by its standard or bank policy or similar factors, certainly co-operates as a component in fixing the value of the gold on the world-market, but it is the collective demand of the whole world, in conjunction with the collective supply, that determines the value of money, that is to say, the general level of prices.

It is natural to suppose that periods with an abundant gold-output have accelerated the change to a gold standard and gold currency, and that this prepared the way for the new gold. But this was not the case in the period we have considered. The demand for gold has not shown the kind of elasticity that would, at least in part, have prevented a rise of prices. On the contrary, in both periods of particularly heavy gold-production, the Californian-Australian from 1850 onwards and the Transvaal from about the middle of the nineties, the rise of prices is, as the diagram (Fig. 3) shows, clearly larger than the increase of the relative gold-supply would lead us to expect. Even if our statistical material were affected by comparatively large errors, this result, as one can easily see, would remain. In both cases the whole extraordinary increase in the gold-output is absorbed by the rise of prices. The demand for gold in these periods increased, at the most, at its normal percentage of 2·8, and perhaps more slowly. Precisely because the extraordinarily increased production of gold could not be absorbed by this demand as long as prices remained unchanged, the prices had to go up.

The fact that the secular price-level was above the relative gold-supply in the fifties and sixties, and below it in the nineties, suggests that certain secular movements occurred in the generally even development of the demand for gold. The situation cannot very well be explained otherwise than by assuming that the gold-demand increased a little more slowly before 1870 and a little more rapidly afterwards. This supposition seems natural in view of the great changes in the province of standard-policy which characterise the seventies. As a rule people were disposed, especially on the bimetallic side, to attribute to this increased gold-demand an exaggerated share in the determination of prices. Probably the change to a gold standard, which certain European countries undertook in the seventies, was so gradually carried out that of itself it could have no material effect upon the general price-level. The later accession of Russia and Austria-Hungary to the gold standard has, as we have seen, left no recognisable trace of pressure upon the general level of prices.

While the European changes of standard in the seventies may have had a certain small share in the subsequent reaction of the general level of prices, another circumstance is probably to be held primarily responsible for this reaction in so far as it was not occasioned by the simultaneous fall of the relative gold-supply. This circumstance is the enormous increase of the gold-demand of the United States at the end of the seventies and beginning of the eighties, due to the preparation for and realisation of the resumption of cash-payment. The paper-money of the Civil War was declared from 1879 onward to be convertible. During the period from the middle of the year 1875 to the end of 1887 the monetary gold-supply of the United States rose from $89,000,000 to $650,000,000, which is more than a seven-fold multiplication in twelve and a half years. The increase was particularly great from the middle of 1876 to the end of 1881—namely, from $99,000,000 to $485,000,000, or nearly a fivefold multiplication in five and a half years. These demands were made at a time when the world-supply of gold was already so scanty that it was bound to lead to a material reduction of prices. The sum of $386,000,000 which the United States alone required for its monetary gold-supply in the above-mentioned period of five and a half years was no less than 64 per cent. of the world's gold-production at the time. As under ordinary circumstances the remainder of the gold-output would probably be required for non-monetary purposes, there was nothing left for the monetary requirements of the rest of the world. The value of gold was then bound to rise much higher than the smallness of production alone implied. In view of the rapidity of the economic development of the United States we may, perhaps, take as normal a doubling of the monetary demand for gold in twelve years. In addition to this the Union required 2,000,000,000 marks for monetary purposes in the period 1875–1887. The fall of the general price-level which this caused may be estimated at about 7 per cent.*

A factor that acted in the same way on the side of the demand, though to a less extent, is the large imports of gold into India in the early eighties. The effect of this demand in reducing prices may, perhaps, be estimated at about 2 per cent.*

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* For the statistical data which are the basis of these calculations see *Report of the Director of the Mint* (Washington, 1911), pp. 21, 43, and 317.

These irregularities in the development of the demand for gold are quite enough to explain the reaction of the general price-level from the seventies to the nineties, apart from the reaction due to the fall of the relative gold-supply. *Thus the secular variations of the general level of prices are mainly due to variations in the relative gold-supply, and for the rest to certain irregularities in the otherwise generally equable increase of the gold-demand.* This completes our analysis of the causes of the secular variations of the general price-level, at least within the limits of possible error in our calculations.

All the factors we have used in the explanation belong, as one sees, to the monetary side of the problem. They are based upon the conditions of gold-production or of standard-policy, and may therefore be regarded primarily as objectively given determining causes of the value of money. There is, therefore, no room for an explanation of the secular variations of the value of money in the period in question by other causes of a general economic nature. During the period in question the secular movement of the general price-level is an exclusively monetary phenomenon.

In its "annual" movement, due to conjunctures, the general economic development naturally exhibits a fluctuating rate of growth; in rising conjunctures the percentage of growth is bound to be higher than normal. This increase in the speed of development should of itself cause a fall of the general price-level. But the price-raising tendencies of a rising conjuncture are so strong that this other tendency is overcome, and the price-level, on the contrary, rises; the provision of media of payment on the part of the banks is so generous that, even though business increases, it suffices to meet the higher prices.

Thus the rapidity of the economic development in the period in question has not affected the general price-level either in its secular or its annual variations.

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* See the same authority.

It must especially be noticed that a general cheapening of commodities, which one is so often inclined to expect from the great increase of the productivity of human labour during the period, did not occur. The supply of the world with means of payment was generous enough to eliminate that tendency.

§ 57. THE REGULATION OF THE PRICE-LEVEL BY THE BANK RATE.

We have now established the fact that the secular variations of the general price-level are due to changes in the scarcity of the gold-supply relatively to the demand. But the question how the gold-supply is able to have this influence upon prices is not yet answered.

An increase in the gold-output is directly felt, in the first place, in the centres of production from the fact that gold is offered in larger quantities for commodities, and this naturally leads to a rise of gold-prices. This increased demand for commodities has an effect, though a very slight effect, upon the commodity-market of the rest of the world. But the final effect of the increased production of gold upon prices in world-commerce cannot be felt until the new gold is brought into the gold-market of the world. The new gold, as a rule, passes from the centres of production to the great commercial centres, especially the London market, from which it is distributed over the world. It is first mostly taken over by the central banks and the treasuries of the various States. There, perhaps, it will remain for some time without any direct effect upon the general price-level.

But we know (Chapter X.) that in a given country the sum of the whole of the media of payment put at the disposal of commerce always bears a certain proportion, though a very elastic proportion, to the gold-reserves in the banks. As there may be fairly large fluctuations of this ratio, an increase of the gold-reserve need not have any direct effect upon the price-level. There is, however, no reason why an increase of the supplies of gold should even, in the long run, alter the average proportion of media of payment to bank-reserves. It is rather to be expected that the larger supply of gold will gradually cause a corresponding enlargement of the amount of media of payment at the command of commerce. We shall, therefore, find it quite natural that the gold-supply completely controls the secular variations of the curve of the general level of prices.

Thus the gold-supply in the main only affects the general level of prices by influencing the banks in their regulation of the provision of means of payment. When this provision is strained to the utmost in relation to the gold-reserves on hand, as is commonly the case during rising conjunctures, the scarcity of gold makes itself effectively felt, and puts a limit to the further satisfaction of the demand for media of payment and therefore to the rise of prices. If a particularly large amount of gold has accumulated in the preceding years, the meeting of the demand for circulating media will be all the easier, and the highest point of the general price-level will be a little higher than it would otherwise be. If, on the other hand, the gold-supply of the preceding years had been particularly poor, the highest point of the price-level during a rising conjuncture must be somewhat lower than would have been the case if the gold-supply had been normal. Hence, although the gold-supply has an effective influence upon prices mainly in rising conjunctures, it is, of course, not without such influence in the other phases of the economic development, for even then the banks are influenced to a certain extent by the abundance or scarcity of the gold-supply in their regulation of the provision of means of payment.

Since, therefore, the gold-supply only influences the secular variations of the general price-level through the policy of the banks, and the annual variations of the price-level, as far as they depend upon monetary factors, are also determined by bank-policy, we find that at any given moment the bank-policy alone on the monetary side is directly responsible for the variations of the general price-level. Now, we know that the factor which we here, for the sake of brevity, call the " bank policy "—that is to say, the regulation of the whole provision of means of payment by the banks—acts exclusively by means of the terms of bank-advances, and that of these conditions it is essentially the bank rate that has the chief influence as a regulator of the supply of means of payment (§ 48). It therefore follows that the movements of the general price-level, in so far as they are controlled by factors on the monetary side, are at all times mainly determined by the bank rate.

The bank rate is, of course, not fixed arbitrarily, but regulated with a definite aim. In a country with a gold standard the bank rate must, as we saw, be so regulated always that home trade makes demands upon the reserves only temporarily, where there happens to be an increased demand for media of payment; on the whole the reserve must not be touched. That is the only banking policy which enables us to keep up the gold standard. The regulation of the bank rate has also to protect the reserves when there is an occasionally unfavourable situation of the balance of foreign payments, or against large claims for these payments abroad. In both cases the motive of the regulation of the bank rate is to keep the standard on a par with gold.

Experience shows that this can be done when the rate-policy is sound. This policy alone, however, is not enough. In order to maintain the gold-parity of a standard it is necessary also to suit the provision of media of payment to the actual needs of commerce. For this elastic bank media substitutes for gold must be used, otherwise the demand for gold might become much too great when there is a pressing need of means of payment. Gold must, however, also be issued to a certain small extent out of the bank reserves, as no effective demand for gold should be left unsatisfied. One might be inclined to say that this constant convertibility of the bank media of payment is the one necessary condition of the gold-parity. Conversion is, however, only possible if we assume, on the one hand, a rate-policy that keeps the demand for means of payment within certain bounds and on the other hand, the satisfaction of this demand with bank media of payment in so far as these are taken instead of gold. By helping out the circulation of gold with bank media of payment and by the issue of gold to meet foreign claims out of the bank reserves the business demand for gold is reduced, and the supply is increased. In times of particularly urgent need of media of payment this acts as a check to the increase of the value of gold, and in times of a rise of the general price-level, or fall in the value of money, it acts as a temporary fall of the value of gold. It is only when media of payment are supplied to commerce in this way that the parity of money with gold can be maintained.

It is, therefore, actually possible by the means we have indicated to keep the value of money in any country at the same level as the value of a certain metal or, to put it more accurately, to fix the price of a certain metal in the standard of that country at least within certain narrow limits. We have (§ 41) shown that this settling of the price of a metal—gold—is the central element of the gold standard. It distinguishes the gold standard from the free standard. Even under the gold standard the standard —for instance, the dollar-standard—has its independent existence. It is only bound up with the metal gold by the condition that the price of gold shall be fixed within certain limits. The regulation of the exchange is, in view of this condition, effected by the bank rate and the use of the bank reserves.

The gold standard may therefore be conceived as a free standard under which the price of gold is fixed within certain limits. The fixing of the price of gold is effected for secular periods by regulating the general price-level by means of the supply of media of payment; for shorter periods by regulating the gold-market according to the general level of prices.

It may now be asked: To what extent is the general price-level controlled by a rate-policy which aims at the maintenance of the gold-parity? The answer is given in what we saw previously: this rate-policy succeeds in regulating the general level of prices in its secular variations according to the world gold-supply, consequently in agreement with a price-level exclusively determined by this gold-supply on the lines of the quantity theory. For the rest, the rate-policy can keep within certain limits the " annual " variations of the general price-level which are due to non-monetary causes (conjunctures), but can hardly prevent them altogether.

A rate-policy that aims at the gold-parity of the standard, or, in other words, at a constant price for gold, will bring about a price-level with secular variations in inverse ratio to the value of gold and with certain independent annual variations. It would hardly be too bold to infer from this that a rate-policy that aimed at the fixing of any other price could bring about the same result. As such aim of a rate-policy the main thing to be taken into consideration would be the fixing of a definite average of a certain group of prices of commodities or, which comes to the same thing, the fixing of the total price of a definite quantity of commodities. It must, therefore, be possible by means of a suitable rate-policy to attain a price-level with secular variations in inverse proportion to the fluctuations in value of this quantity of commodities relatively to the sum total of commodities.

By choosing a sufficiently representative quantity of commodities such changes of value could not take place to any great extent, and it would therefore be possible to stabilise the general price-level by means of a prudent rate-policy to such an extent that there would be no secular variations. Annual variations of the price-level would, of course, be no more avoided than in the case of a gold standard. The nominal fixing of the price of the quantity of commodities could not be effected in regard to the conjuncture-movements of the price-level, as the means which is used for the purpose under a gold standard, the issue of gold from the bank reserves and the partial satisfaction of the demand for gold by substitutes, would here not be available.

Whether it is possible to restrict the fluctuations of prices during conjunctures more than is now done by means of a proper rate-policy must remain an open question here. At all events we have no experience that shows the possibility of thus controlling the formation of prices by means of a rate-policy. An attempt to do so would encounter the resistance of independent economic factors, while the attempt to influence the general level of prices in its secular variations in any particular direction under a free standard finds the standard entirely passive.

When we compare what was said in the previous chapter about the effect of the bank rate as a regulator of the provision of media of payment with the results of the present chapter, we can answer the question in what way the general price-level is influenced by the bank rate. A fall of the bank rate means a keener competition of the banks on the capital market, as newly created bank media of payment compete with savings. This influences the whole capital market, and the rate for long-term loans is adjusted to that for short-term advances. This augmented offer of capital-disposal must sooner or later create a corresponding demand, and therefore an increased production of real capital. If the banks thus succeed in getting new bank media of payment into circulation, and if on that account the quantity of media of payment increases in a larger proportion than the production and exchange of commodities, the general level of prices is bound to rise, especially if—as is generally the case in one of these periods of brisk business—the degree of the use of the media of payment rises at the same time. This rise of prices makes room for the new bank media of payment; they are retained by commerce, and the rise of prices becomes permanent.

Under a gold standard the banks are restricted in the increase of bank media of payment by their obligation to redeem. Under a free standard which has no such limit, the complete passiveness of the standard comes to light; the general price-level offers no resistance to the indefinite increase of media of payment. The banks can, therefore, continue to compete on the money market by the issue of new quantities of bank media of payment, and the general level of prices may rise indefinitely. It would, however, be a mistake to suppose that there is no stability at all in this sphere; that in this case action would not lead to reaction. Certainly the general price-level itself cannot effect any reaction. But its passiveness is by no means shared by the capital market, which is also affected by the rate-policy of the banks. We saw in the previous chapter (§ 48) that the capital market reacts against too low a rate of interest, as the production of real capital is increased and therefore the demand for the command of capital is so far restricted that the lower rate of interest may be regarded as normal, and there is no more room for a further price-raising issue of bank media of payment. Thus the rise of prices comes to an end. It is only when the banks, during repeated disturbance of the money market, again reduce the bank rate that the process begins over again with a consequent rise of the general level of prices.*

In the previous chapter we were content to say that the " correct " or " normal " rate cannot be defined as a " real interest," a " marginal productivity of capital," because the rate is by its very nature a market price, and the market is always strongly influenced by the rate-policy of the banks. It is therefore quite clear that the "true interest on capital" can only be defined as a market-interest formed under certain definite conditions of the market. Our latest results now enable us to fix the idea of interest on capital more precisely.

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* Wicksell, who has done great service in pointing out the importance of the bank rate as a regulator of the general level of prices, seems, nevertheless, to exaggerate it considerably when he says that the effect of a reduction of the discount rate is " cumulative "—that is to say, results in a continuous rise of prices as long as the lower discount-rate is retained —and that therefore a slight fall of the rate could raise prices indefinitely. This paradoxical inference is clearly possible only when one overlooks the reaction of the capital market to an undue lowering of the rate of interest. The possibility of avoiding a rise of prices in rising conjunctures by a sound discount policy and so attaining a steady level of prices is perhaps also overestimated by Wicksell. See his *Geldzins und Guterpreise* (Jena, 1898), *Om penningar och Kredit* (Stockholm, 1906), and " Penningvärdets reglering " in the *Ekonomisk Tidskrift*, 1913.

We have in our theory of capital defined interest as the price that is paid for the right to dispose of a unit-sum of money during a unit of time. In this the sum of money might be conceived as merely an abstract sum expressed in the scale of reckoning which is formally taken as unchangeable. Now that we take into account the possibility of a change in the value of money, we have to fix the idea of interest in relation to these changes also.

When the bank rate is kept so low that the value of money is reduced, the giver of money will, when his loan is repaid, receive a smaller real capital than he originally lent. He had sold capital-disposal on the market, and had stipulated for a certain interest. But the business has fallen out otherwise. He has not got his capital back in full. The interest is in that case not an adequate compensation for his sacrifice. If he is to be compensated for the loss of capital caused by the fall in the value of money, a higher interest must be paid. And if we conceive the market rate of interest raised in this way, we approach a rate that no longer causes a fall in the value of money. If this principle is established, the giver of money will sell a mere control of capital, and will get the price of it in market interest.

One might therefore define the true interest on capital as that rate of interest at which the value of money remains unchanged. On this rate of interest just so many new bank media of payment will be put into circulation as the growth of commerce (the price-level remaining unchanged) requires. The competition of the bank media of payment with savings on the money market may then be considered normal, and the rate of interest which keeps this money market in a state of equilibrium may be called the "proper rate of interest." The rate-policy which, under a free standard, aims at keeping the general level of prices constant, would then be identical with a rate-policy that endeavours to bring the bank rate into harmony with the true interest on capital. This would also settle what is to be understood by a sound direction of the capital market and a sound distribution of the productive forces between the future and the present. But there is inevitably something conventional in all these attempts to fix the idea of interest on capital. For it is assumed in the definition that the unchangeability of the general price-level is regarded as "normal," and this is by no means self-evident; besides that the determination of the general price-level itself always contains a certain conventional element in the construction of the index figures.

It is, nevertheless, a considerable advantage to have fixed the idea of interest on capital in this way. It gives us a firm basis for settling many questions in regard to which very obscure ideas are prevalent. It is, for instance often said that France secured the advantage of a low rate of interest by its standard and banking policy. If this means that in France there is a lower rate of interest than the state of the money market would justify, the French system would be bound to lead constantly to an over-production of capital and an abnormal rise of the general level of prices; which is clearly not the case.

§ 58. The Stability of the Value of Money.

The considerable secular variations in the value of money that have occurred since the middle of the nineteenth century have naturally raised the question whether it is possible to avoid such variations and create a monetary system with a practically unchangeable value of money. As the variations of the value of money may rightly be attributed to variations of the gold-supply, this question was bound to lead to a demand for the substitution of a more perfect standard instead of the gold standard.

The great fall in prices from the beginning of the seventies to the middle of the nineties was used by the bimetallists as the starting-point of their attempt to raise a standard on the basis of two metals instead of one, so as to be more independent in case one of the metals became scarce. We have already proved (§ 41) that this introduces a foreign element into the problem of the stability of the standard. This problem of itself only requires the fixing of *one* price or, which comes to the same thing, an average of a certain group of prices. Bimetallism, moreover, wants the ratio of two prices settled, a matter that lies entirely outside the problem of the standard.

Fisher has lately submitted a proposal for creating a "standard dollar" which should represent a constant value, but a variable quantity of gold. The gold-content of the dollar or, rather, the quantity of gold that lies behind the abstract standard unit "dollar," would thus be changed from time to time according to the volume of the gold-supply, and this would make it possible to maintain an invariable price-level.

This much-discussed plan is exposed to some extent to the same theoretical objections as bimetallism. The connection of the standard with the metal gold has a purpose so long as the general price-level is thereby kept at least substantially unchanged, or as long as we abstain from using better means of regulating the price-level. But when the insufficiency of this method of regulating the price-level is recognised, and an attempt is made to make as constant as possible a price-level defined by a definite index figure, we are really introducing a foreign element into the problem when we propose to fix the price of gold from time to time under a standard thus regulated. This attempt has plainly involved the Fisher reform of the standard in great difficulties. The retention of the attempt to regulate the price of gold is evidently based upon a misconception of the nature of the gold standard. The fixing of the price of gold under a gold standard is, as we saw, not in itself a direct means of regulating the price-level, but merely a means of indirectly controlling the secular variations of the price-level by influencing the rate-policy of the banks. It would probably be possible to create a standard under which the price of gold, instead of being constant, as it is under the gold standard, would exhibit secular variations. If these variations were properly selected, a stable price-level might be attained. But this seems to be a quite unnecessary roundabout way. For short periods the fixing of the price of gold under a gold standard does not, as we saw, mean a stabilisation of the price-level. On the contrary, it is only possible so to fix the price by special action on the gold market. The periodical alterations of the price of gold which Fisher proposes would on this account clearly be unable to have any great effect upon the price-level in short periods, and would, moreover, raise greater difficulties than the retention of an invariable price of gold.

Further, an official alteration of the price of gold under a gold standard could only effect a proportional change in the general level of prices if the supply of means of payment were correspondingly altered. For secular periods this may, perhaps, be assumed, if the metallic content of all coins, as well as the quantity of bullion lying behind the paper currency, are proportionately altered, but certainly not if the coins already issued remain unaltered. If gold coins form the greater part of the monetary supply of gold, and these remain unchanged, an alteration of the price of gold will in short periods have only an evanescently small effect upon prices. Since, therefore, Fisher's calculations are completely inacceptable in all essential respects, it is not necessary to go into the many practical difficulties which stand in the way of carrying out his plans.

The most profound reason for the failure of Fisher's proposal is, clearly, that he complicated his main object with an alien object which was bound to upset, or at least make much more difficult, the problem of stabilising the value of money. If we are to create a monetary system with an invariable money-value, we must make this object our exclusive aim and not connect it with other aims. The solution of the problem is, according to what we have already seen, to start from a perfectly free standard and try to stabilise it by fixing the total price of a certain quantity of commodities. The only possible means of doing this is the rate-policy of the banks. That it would thus be possible, from the standpoint of the theory of money, to create a standard without any appreciable secular variations of the price-level cannot be doubted. The question whether it would also be possible to overcome the great administrative and political difficulties that stand in the way of realising such a standard is outside the sphere of economic theory and must be ignored here.

On the other hand, it is our business to study the object of the control of the value of money when it has been attained. The fact that an invariable price-level is often regarded as a self-evident ideal comes of the practice of more or less unconsciously starting, in these and many other questions, from the idea of a stable national economy. The moment we consider a progressive national economy, we see that the question has other aspects. Progress consists in raising the productivity of human labour as well as in multiplying the labour. If the productivity increases in a certain annual percentage, we may suppose, on the one hand, that the prices of commodities remain unchanged and the incomes of the producers are increased by the aforesaid percentage or, on the other hand, that the incomes of the producers remain constant and the prices of commodities are reduced to the amount of the percentage. At any given moment the height of the price-level is, of course, immaterial. It is only the variations of the price-level that are important, and this importance may make itself felt by comparing the position of the price-level at two different times, or in transactions which connect the two different points in time. A loan may be taken as an example of these transactions. The whole question of the practical importance of stabilising the value of money must primarily be regarded from the point of view of the relation between lender and borrower. If productivity rises and the prices of commodities are unchanged, a lender of money will receive back a sum that represents the same amount of commodities as the original loan. He will therefore derive no advantage from the increased productivity; relatively, he will be worse off. The whole advantage falls to the borrower of money, who, if he is a producer, as he generally is, has made a direct profit by the increase of productivity without alteration of prices; if he is a State, borrowing for purposes of consumption, he sees his financial position strengthened by the rise of the general income. If, on the other hand, the prices of commodities fall in the same measure as productivity increases, the loaner gets his share of the increased productivity, while the borrower gets no profit from it in connection with the loan.

Which alternative is to be preferred, or whether a middle course should be adopted, is essentially an economic-political question in which great interests are opposed to each other. Economic theory has not to decide it. But we must draw attention to the fact that the regulation of the price-level is made much more difficult when any other aim than the maintenance of a constant price-level is proposed, and it is attempted to reduce prices in a certain ratio to the increasing productivity. For in that case it has to be determined every moment how great the increase of productivity is at that moment, and that is clearly a very difficult matter.

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CHAPTER XII

INTERNATIONAL PAYMENTS

§ 59. THE ADJUSTMENT OF THE BALANCE OF PAYMENTS. FIRST CASE: FREE INDEPENDENT STANDARDS.

UP to the present we have generally ignored international payments in the course of our study, and we have concentrated our attention on the purposes and position of money within the national economy; partly for the sake of simplifying the theory of money which we thus construct, and partly because it is mainly necessary to show how money functions in a self-contained economy, how, especially, a definite value of money is maintained—because, in other words, the soundness of a theory of money must first of all be tested in the simplest case of the self-contained economy. Now we have to consider the international function of money. It will be found that the treatment of this question is simplified by the preceding study of money in the self-contained economy. We shall, moreover, only deal with the technical side of international payments in so far as it is necessary for a complete explanation of the theory of money; for the rest the reader must consult special manuals.

First let us consider the countries with free and mutually independent standards. Payments between these countries can, clearly, only be effected by an adjustment of their reciprocal claims. In the long run there must always be, on the whole, such an adjustment; for, if this were not the case, one country would be bound to have a preponderant claim of payments against the other, and this, if the claims are not written off, would involve a loan, which in turn would create for the second country a counter-claim for the adjustment of the balance of payments. Still, there may be momentary inequalities in the international balance of payments, and the question arises, what effect they have, and how they are to be settled.

The regular international medium of payment is the bill of exchange. The following is the simple scheme for the adjustment of international liabilities by means of bills of exchange: The exporters of commodities in country A sell their goods to country B for bills of exchange under the standard of that country. These bills are demanded in country A by the buyers of goods of country B, and by these they are sent as payment to country B. In country B the bills are redeemed by the acceptors. We see that on this scheme all payments are effected in the standard of country B. We must bear in mind that payments between two countries may be effected as they are on this scheme by the importers of country B. As long as there is a balance between the reciprocal claims, the system clearly suffices for the settlement of all liabilities between the two countries.

What is paid in country A for bills of exchange on country B? The reason why bills on B are demanded in country A is that they represent purchasing power in country B. This purchasing power is, clearly, valued in A in proportion to, on the one hand, the lowness of the general price-level in country B—in other words, in proportion to the value of money in B—and, on the other hand, the height of the general level of prices in country A itself. The price of the bill of exchange on country B is therefore an expression of the value of the standard of country B in the standard of country A, or, if one cares to put it so, of the ratio of the value of money in A and B. The price of the unit of the standard of B in terms of the money of A is called in country A the *rate of exchange* against B. (In England, on the contrary, the rate of exchange is in most cases described as the amount of the foreign standard that can be bought for the unit of the home standard, the pound sterling.)

Definitive changes in the rate of exchange may occur when there has been a movement of the general price-level of one country relatively to that of the other country. The change in the relative value of money then makes itself felt in a change of the rate of exchange. International commerce has no remedy against this alteration of the rate of exchange, because the ratio of the standard-units of the two countries is immaterial to commerce; a point that we can realise best, perhaps, by supposing, as we have done here, that all payments between A and B are effected in the standard of B.

On the other hand, occasional fluctuations of the rate of exchange may be caused by occasional inequalities in the balance of payment. If, in that case, the general level of prices in both cases remains unchanged, the rate of exchange must keep its position of equilibrium: that is to say, must have a tendency to return to this position of equilibrium after every deviation. Inequalities of the balance of payment occur especially from the lack of agreement between supply and demand of bills of exchange. When bills upon B become scarce in country A—that is to say, when, on the current rate of exchange, the demand for bills exceeds the supply—the rate of exchange must clearly rise. We therefore ask: How does this rise of the rate of exchange affect the market for media of payment to B? The stability of prices always assumes that a rise of prices either restricts the demand or increases the supply, or does both together, so that balance is restored between supply and demand. How can a rise of the rate of exchange reduce the demand for means of payment to B or increase the supply of such means? That is the question which the theory of the rate of exchange has to answer.

It is closely connected with the question how occasional irregularities of the international balance of payment are adjusted. There are two chief ways of effecting this adjustment: changing the time of payment and changing the balance of liability. Under the head of "change of time of payment" we may enumerate the following operations:

(*a*) Deferring payment (prolongation, transferring payment from the present to the future);

(*b*) Discounting liabilities, especially bills, that are not yet due (transferring payment from the future to the present);

(*c*) Loans proper, often in the form of financial bills, treasury-bills, etc., (equivalent to transferring payment to the future).

As loans for the adjustment of occasional fluctuations of the balance of payment we have, naturally, mainly to consider short-term loans, whereas a permanent deficit is adjusted by funded loans.

The adjustment of an unfavourable balance of trade is also effected by creating new claims upon the foreign country by an increased exportation of commodities or stocks, and also by restricting new liabilities by cutting down the importation of commodities or stocks.

It is obvious that an unfavourable balance of trade can be improved by these means. All of them are made more effective by a rise in the rate of exchange, though they vary a good deal in their sensitiveness to changes of it. When the rate is high, payments will be deferred to a certain extent, and this will curtail the demand at the time for media of payment. This, however, is not very important as regards the adjustment of the balance of payments. Mainly the adjustment is effected by creating at-sight means of payment to the foreign country. That a rise of the rate of exchange should involve the discounting of foreign liabilities that have not yet matured and the taking-up of foreign loans is explained by the higher price which foreign credits created in this way obtain on the home market when the rate of exchange is high. In the same way is explained the action of the rate of exchange upon export; as long as the general level of prices at home remains unchanged, the home producers can turn the rise of the exchange to their own profit by exporting commodities and selling the receipts on the home market. Similarly, speculators can buy stock on the home exchange, export it abroad, and sell the credit they obtain on the home market, and so again make a profit out of the rise of the exchange. Naturally, the trade in stock is much more sensitive to fluctuations of the exchange than the trade in commodities is.

We must further bear in mind that the stimulating effect of an increased rate of exchange upon exporters can only make itself felt as long as home prices do not rise. If there is a rise of home prices corresponding to the rise of the rate of exchange, all advantage to the exporter disappears. The higher exchange is then merely an expression of an altered ratio between the value of the home money and the foreign, and this alteration has no significance in connection with the balance of payment between the two countries.

§ 60. SECOND CASE: METALLIC STANDARDS.

We now turn to the case in which both countries have metallic standards. These standards, in the first place, may be different. Let us suppose that one has a gold, the other a silver, standard. In that case the standards are no more completely independent of each, than as in the preceding section. Those who have gold currency may get the metal silver for this and have it coined in the silver country. The value of the silver currency in the gold standard, therefore, depends upon the price of the metallic silver. We thus get a definite connection between the two standard units: the ratio of their value is mainly determined by the ratio of value of silver and gold on the open metal market, and the rate of exchange cannot deviate too much from the rate which corresponds to this ratio of value of silver and gold. The deviations of the rate of exchange from this normal rate are of the same nature as the deviations from the par-rate in the case of two countries having the same metal standard, and therefore need no special explanation.

The connection between the two standards is still closer when they are based upon the same metal. Let us suppose that both countries have a gold standard. This means that the movement of the price of gold in both countries is confined within two fairly narrow limits. It is, therefore, always possible for the possessor of A currency to get B currency by buying gold in A country and selling it in B country. The highest cost of getting B currency in this way arises when the price of gold in country A is at the upper limit allowed by the gold standard of that country, and at the same time the price of gold in country B is at its lower limit; the lowest cost is when the price of gold is at its lowest in A and at its highest in B. The cost which is incurred in country A in getting the unit of the B currency by sending gold to B is called the *gold-point for the export of gold* from country A, or the *upper gold-point* for country A. This upper gold-point also may fluctuate within certain limits, as follows from what we have seen. It is determined by the buying and selling prices of gold and by the cost of transport; which, however, may be regarded as constant.

On the other hand, it is always possible for the possessor of B currency to get A currency by buying gold in country B and selling it in country A. What he gets for the unit of the B currency depends upon the prices of gold in both countries. He receives most when the price of gold in country B is at its minimum and at the same time the price is at its maximum in A: he gets least when this situation is reversed. The amount that may be obtained by sending gold from B to A for the unit of the B currency is called the *gold-point for the import of gold* into country A, or the *lower gold-point* for country A.

Both gold-points are, therefore, variable within certain limits. They are, however, definite at any given moment, and they then indicate the extreme limits of the fluctuations of the rate of exchange. The price of the unit of the B currency cannot rise above the upper gold-point, for in that case, instead of buying bills, one would send out gold—or rather, speculators would send out gold—draw bills on it, and sell these bills on the market; which would clearly, in virtue of competition, be bound to bring down the rate of exchange to the gold-point. On the other hand, the rate of exchange cannot fall below the lower gold-point. For the holder of bills on B would not accept so low a price, but would rather sell his bills in country B and collect the proceeds in gold, or the middle man would buy the bills on B and convert them, by the import of gold, in A currency, so that in virtue of competition, the rate of exchange must be forced up to the lower gold-point.

In sending gold from London to Berlin, for instance, one had, under pre-War conditions, to reckon with a buying price in London of £3 17s. 10½d. per ounce of standard gold (theoretical par), but occasionally a little more. In Berlin the gold can always be sold at a price of 2,784 marks per kilogramme of fine gold (the legal buying price of the Reichsbank). This means 20·385 marks for the pound sterling, of which we must allow about 0·045 marks for cost of sending, so that the proceeds may be put at 20·34 marks for the pound sterling, whereas the theoretical parity of the sterling-standard in Reichs-marks is 20·4294. On the other hand, a pound sterling can usually be got in London by sending gold from Berlin at a price of about 20·50 marks. The figures 20·34 and 20·50 marks are given as the Berlin gold-points for the import and export of gold. Sometimes these gold-points may vary a little according to the fluctuations of gold prices in London and Berlin, but in the main they indicate the limits of the movements of the rate of exchange between the two places.

Hence from the point of view of international payments the gold standard must be regarded as a free standard, under which the movement of the rate of exchange with another gold-standard country is confined within certain slightly variable, but always rather narrow limits. This restriction will continue as long as the gold standard is effectively maintained in both countries; that is to say, as long as gold can be bought and sold at a price within the legal standard limits. As long as the rate of exchange varies within the gold-points, the gold standard must, as regards international payments, be regarded entirely as a free standard, and the rate of exchange is regulated in just the same way as in the case of free standards. A rise or fall of the rate of exchange, occurring in consequence of an occasional inequality of the balance of payment, the value of money remaining unchanged, will set in motion the counteracting forces described in the preceding section for the adjustment of the balance of payment, and the restriction of the movement of the rate of exchange. If, in spite of this, one of the gold-points is reached, a movement of gold from one country to the other sets in, as an export of commodities of a special sort, which is calculated to restore the equilibrium of the balance of payment. The gold-supply of a gold-standard country thus acts as a reserve for the adjustment of an occasional deficit in the balancing of international payments. If this reserve is entirely exhausted, there remain only the usual means for adjusting the balance of payment: the acceptance of foreign loans, and the export of stock and commodities. In that case, however, the gold standard has gone.

These means are, naturally, much in demand as soon as the rate of exchange approaches the upper gold-point, or even exceeds it. But this automatic regulation of the balance of payment is only effective on condition that the value of the money of the country is not reduced relatively to that of the foreign country. If, on the other hand, the unfavourable balance of payment and the rise of the rate of exchange are due to a general raising of home prices in comparison with prices abroad, the rise of the rate of exchange will not experience these checks. Even then, however, the gold-supply, as long as gold is given out freely at the par rate, affords a temporary obstacle to the further rise of the rate of exchange; though by no means to a continued rise of prices. If the gold-supply comes to be completely exhausted, or the redemption of notes is suspended, the rate of exchange and prices will continue to rise indefinitely.

Hence the stabilisation of the rate of exchange depends in the first place entirely upon the stabilisation of the relative value of money; in other words, upon the factors which regulate the value of money in both countries.

According to the classical theory the gold-supply must be so distributed between gold-standard countries according to the needs of each country that the general level of prices will stand about the same in both countries. If the price-level rose in one country, the importation of commodities into this country would be encouraged and the export of commodities hampered, and therefore gold would be abstracted from that country; this would reduce its gold-supply, and its price-level would, in accordance with the quantity theory, be proportionately lowered. This would provide an automatic regulation of the distribution of gold and of the price-level of the two countries. The theory would be sound on the whole, if the metal gold were really the standard. In reality this is not the case. Even the gold standard has its independent existence; and is only bound up with the metal gold in the way we have already described. The nucleus of truth in the classical theory must have been properly presented in the arguments of this section.

The so-called currency theory, which was the basis of Peel's Bank Act of 1844, and became the starting-point of the "contingent" system of limiting the issue of notes, was a practical consequence of this classical theory of the international distribution of gold and regulation of the value of money. If banknotes circulated as well as money, this could only be permitted on condition that the sum total of circulating media experienced the same changes, under the influence of fluctuations of the price-level, as a pure system of gold-circulation would have experienced. Hence every diminution of the gold-supply of a country should entail an absolutely equal diminution of its supply of media of payment. Legislation of this kind has not only the same fundamental defect as any legislative fixing of the reserve of notes (§ 45), but is also based upon a wrong idea of the gold standard as an actual system of gold-payment.

§ 61. THE SIGNIFICANCE OF BANK POLICY AS REGARDS INTERNATIONAL PAYMENTS.

In regard to home payments the bank policy under a gold standard has, as we have already seen, so to regulate the provision of means of payment that the money will keep as far as possible its parity with gold. For this the bank policy alone is not enough. It is generally necessary, to prevent an occasional premium on gold, to keep a reserve of gold to meet occasional increases of the monetary demand for that metal. If gold is not in circulation, the reserve is not called upon for home payments; for the home system it represents only a fund for meeting the non-monetary demand for gold.

The bank policy has to be similarly managed in regard to international payments in order to keep up the exchange. This is partly done by a policy which keeps money on a par with gold on the home market. In this way alterations of the general price-level, which drive the rate of exchange up to the gold-point and therefore cause the export of gold, are avoided. It must, both at home and abroad, be the aim of the bank policy to avoid as far as possible demands upon the gold-reserve. This, however, cannot entirely be done even by a sound banking policy. To meet demands for gold which arise in spite of all precautions there must be a certain gold reserve. As regards foreign payments the object of the reserve is, as we give it in the preceding section, to complete the amount of foreign means of payment when there is a deficit in the balance. Banking policy has to see that this need, like the corresponding need in home trade, only occurs occasionally; and that the gold returns to the country and the bank reserve as soon as the balance of payment has been improved. It is only when the general price-level is properly regulated by the bank policy that the bank reserve can be thus protected against home or foreign demands, and preserved for its purposes.

We saw that in regard to the home demand for means of payment the gold-reserve of the central bank may be considerably reduced if there is no gold in the home circulation. In the same way the claims upon the gold-reserve can be materially reduced if other means of payment are used instead of gold in the settlement of international liabilities. As such there are, for a central bank, claims payable at sight upon foreign banking houses, contango payments negotiated in the best Exchanges, and especially, perhaps, first class bills upon such places. These bills may be in part drawn by the home country against the foreign country, but they are mainly bills bought at the foreign place with the object of fructifying the bank reserve. A central bank which keeps these credits in sufficient quantity in the leading centres of international payment can always meet demands for foreign means of payment by drawing upon them, and thus can avoid sending gold. This seems to be the most natural and most convenient way, as, in the long run, it is not gold, but foreign media of payment, that are demanded. There are many examples of this kind of banking policy, which is the same thing as what is sometimes called "bill policy." It is most developed by the Swedish Riksbank, which always kept considerable credit before the War in foreign banking houses, and especially a reserve of bills that had mostly been bought on the Berlin Exchange. As in this way the demand for gold for export is avoided in all ordinary cases, and as there is no gold circulating in the country itself, the Swedish Riksbank could be satisfied with a very small gold-reserve. It is true that the gold covering of the notes generally stands at nearly one-half, but this is to be regarded as a precautionary measure to meet emergencies, especially in case of war, when the aforesaid foreign media of payment lose in value or are, perhaps, no longer available.

Whether the reserve consists of gold or foreign credits, it must be protected against excessive demands. This is done, as we have said, mainly by a banking policy which aims at keeping the general price-level as far as possible in agreement with the relative gold-supply of the world. If, for the sake of simplifying the matter, we suppose that the relative gold-supply is constant for some time, the banking policy must be directed to keeping the general level of prices constant. Let us suppose that this succeeds entirely for a certain period. The means of doing it is, as we showed, the interest-policy, especially, the discount-policy, of the banks. Let us suppose also that the level of prices is unchanged abroad. In these circumstances the home discount-policy will protect the reserve against all demands which may be caused by a rise of prices and a consequent increase of the demand for home and foreign media of payment. The demands of means of payment which the home market notwithstanding makes are due to a special briskness of trade at certain times of the year or during favourable conjunctures, and are chiefly met by the increase in bank means of payment. In the same way special demands for foreign means of payment will arise from occasional excesses of foreign liabilities. An occasional negative balance of payment of this kind may easily occur without any change in the general level of prices, though as a whole there is equilibrium in the balance of payments; for instance, on account of an unequal distribution of exports and imports in the various seasons or an occasional preponderance of imports under certain economic conjunctures, such as the loan of capital abroad, a bad harvest, and so on. These occasional demands for foreign media of payment are primarily satisfied by the means indicated in § 59, especially by discounting bills, selling stock, and taking up foreign loans. As a rule these methods succeed in improving the balance of payment, and so the reserve is protected against demands for foreign means of payment, just as the use of bank media of payment suffices to turn aside the demands for home currency.

A central bank, however, is in a position to accelerate and reinforce these automatic improvements of the balance of payments. This is done by a device which is, in this connection, usually called the "discounting policy." When the discount rate at Berlin is raised above the rate current at comparable foreign centres, foreign capitalists will, in ordinary circumstances, be eager to place their capital in Berlin for a time, which may involve sending gold to Berlin, though it is generally done by purchasing liabilities which mature. This amounts to transferring liabilities to the future, and the balance of payment at Berlin is improved for the time. Germany will also discount foreign bills at foreign places at a lower rate, and by this anticipation of future claims will create credits that momentarily relieve the balance of payments. Or, again, in order to avoid the high German discount-rate, bills are sent abroad " en pension;" which is equivalent to taking up a short-term loan. The high discount and the consequent high rate for contango money, have a direct depressing effect upon the Berlin Exchange, which causes the sale of stock abroad, and this in turn relieves the German balance in favour of Germany. The methods are very different, but the nucleus of the matter is the same: the height of the rate attracts capital and so improves the balance of payment.

We must bear in mind that this discount policy, which we may, perhaps, call the " foreign discount policy," is of quite a different character from the discount policy by which a central bank regulates the value of money in a country in the way we have described (§ 48). On the simplifying assumptions we have made here, the latter discount policy is entirely directed by the single object of keeping the general level of prices steady. But this does not prevent the occurrence of inequalities in the foreign balance of payment, which may cause the central bank to adopt a discount policy suited to the actual position of this balance of payment. In this, however, the bank traverses its fundamental discount policy for regulating the value of money, and as a rule it is inevitable that the work of regulating the value of money and the money market should suffer from the new aims that the discount policy imposes. The " foreign discount policy " then means a disturbance of the proper and central discount policy.

The foreign discount policy is of its very nature a differential discount policy, having to keep its eye primarily upon the differences between the discount rates in the various monetary centres. When Berlin raises its rate in order to attract money, as we say, London is often compelled to raise its own discount rate in self-defence. This hampers the discounting of sterling bills in London, and, generally, checks the transfer of money from London to Berlin. If London raises its rate higher than the Berlin rate, Germany may be compelled to make further advances. This becomes a sort of race sometimes, in the course of which the discount rate may be raised higher than is necessary from the point of view of the regulation of the value of money. We must, however, bear in mind that these increases of the discount rate hardly go too far if they occur during rising conjunctures, as it is in any case not possible to prevent a rise, often a considerable rise, of the general level of prices. In times of crisis, on the other hand, a feverish rise of the discount rate in the international competition for gold is scarcely reconcilable with a rational monetary policy.

The disadvantages of the frequent and marked fluctuations of the discount rate which result from the "foreign" discount policy have led to a practice of protecting the gold reserves of the banks by charging a premium on gold for export, instead of by raising the discount rate. This "gold-premium policy" is, without a pure gold standard being therefore abandoned, very commonly carried so far that the price of gold is forced up to the upper limit permitted by currency legislation. It may go even further in countries that have a "limping" standard, or an imperfectly realised gold standard. When a gold-premium is introduced the exchange rate for foreign bills may go above the normal gold-point. The gold-premium policy thus leads to fluctuations in the exchange rate instead of fluctuations in the discount rate, and it may be disputed which of the two alternatives is the lesser evil. In one case trade has to bear a discount rate that has no basis either in the state of the capital market or from the point of view of the regulation of the supply of media payment on the home market; in the other case there is a deterioration of the standard, and the gold standard is at times abandoned. It is best, of course, to avoid both. And to a certain extent this ought to be possible if a large reserve is kept abroad, either in gold or in claims payable on demand or in short-term liabilities.

If we assume a country imposing at all times an invariable premium on gold, such a measure really means an abandonment of the gold-parity of its currency; and one cannot see why this could not be done just as well directly. This premium on gold is, clearly, of no more consequence for the balance of payment than it is for protecting the gold-reserve.

FOURTH BOOK

THE THEORY OF CONJUNCTURE-MOVEMENTS

CHAPTER XIII

INTRODUCTION

§ 62. The Character of the Problem.

OF all the phenomena of conjuncture-movement it is crises that have, quite naturally, attracted the most attention. There is in them a dramatic element which ensures public interest in them. For the business world the crisis is a period of danger, of great losses, of ruin. Science also has particularly devoted itself to the study of crises. Special students have given us theories of the crisis: they have sought to ascertain the characteristic features of crises by collecting a mass of historical material, and to acquire some knowledge of the causes and effects of crises by comparing the peculiar phenomena of the crisis with the processes of the antecedent and subsequent periods. This method has certainly not been without results. But from its very nature it is bound to pay attention chiefly to those external features of crises that seem to have the greatest interest, and therefore the greatest objective significance, from the point of view of the business world or of a more or less pre-conceived scientific theory. A really systematic and impartial study is hardly possible under those conditions, or it is at all events more difficult.

Here we adopt a different method. We will not study crises as isolated phenomena, but the conjuncture-experience as a whole, as a continuous movement of the national economy. Our attention will generally not be directed to isolated and arbitrarily selected phenomena, but we will systematically inquire what real changes the national economy experiences in the vicissitude of good and bad periods. This systematic study of the economic movement will afford us, step by step, an insight into the nature of conjunctures and the causal connection between the various factors which are responsible for the fluctuations of the national economy, and are in turn affected by these movements. In this way a study of conjunctures leads to a treatment of the dynamics of the social economy and this will serve as a necessary completion of our earlier treatment of the economic life as a static phenomenon or a uniform development.

In studying the changes of the economic life under the stress of conjunctures we will proceed as far as possible from the concrete to the abstract. We will, therefore, first consider the changes in material production and the connected changes in regard to the means of production. We will then review in succession the fluctuations of prices and of income, and end with a study of the changes in the state of the money market. At every step we will try, as far as possible, to establish the actual processes statistically, in order to bring to light the reciprocal action of the various lines of movement and reveal the inner connection. It is obvious that in such a kind of treatment the graphic method can be of great service, especially when there is question of comparing two different movements.

It is clearly an advantage to be able to follow the lines of development of the economic life over as long a period as possible. Only a curve embracing a series of conjuncture-changes gives us a satisfactory picture of the way in which these conjuncture-movements act upon a certain factor, and it is only by a comparison between two such curves that we get a more or less confident insight into the reciprocal action or parallel action of different factors.

An inquiry of this kind, however, which is to hold good for the economic life of the whole of Western Europe, cannot, as a rule, go back farther than the early seventies. The limit is fixed by the nature of the available statistical material. But there are also intrinsic reasons for it It is only from that date that there develops a world-economy of so connected a nature that it is possible to consider it as a whole. Only then were the older economic forms generally and definitively displaced, the modern economy of exchange and production by division of labour substituted for them, and the modern technical skill in production and transport developed. In fine, from that time onward certain older forms and causes of crises seem to have been substantially overcome, and the modern type of crisis and of good and bad periods, with their characteristic features, emerged.

Crises, in the general sense of violent disturbances of the economic life, may be of many different kinds. In history they are chiefly found in connection with great economic revolutions or new institutions and conditions, for the proper handling and control of which economic humanity needs a long education by experience. Thus, for instance, the evolution of the monetary system led to innumerable crises which may be traced to misunderstandings in the handling of the coinage or the issue of notes. Other crises were due to the misuse of credit, especially, perhaps, the credit of the State, or of special instruments of credit such as the exchange. The great opportunities that were offered to speculation by the Exchanges, as in the early days of limited companies, also led at first to serious abuses, and this often brought about violent crises. The extension of the sphere of West-European trade to the entire world involved one of these changes in the existing economic conditions which was bound to lead to many a crisis before the business world had quite grasped the new conditions of action and adjusted itself to them. The beginning of exportation from Europe to the colonies was characterised by a really astonishing lack of knowledge of the needs and purchasing capacity of distant parts of the world. This fact, together with the slowness of communications, is responsible for a series of great commercial crises both in the eighteenth and the first half of the nineteenth century. Revolutions in the conditions of the importation of commodities from the colonies to Europe also provoked crises, the most important and best known of which is that of European agriculture at the close of the nineteenth century. It is only natural that the great modern revolutions in the technical processes of industry could not take place without serious crises, and these were especially felt in a number of trades at the transition from manual labour to machine-production. Besides these circumstances there are smaller occasional disturbances of the economic life to be taken into account as causes of crises. Most of them may be traced to the occasional scarcity or surplus of commodities; they arise, for instance, during a very good or very bad harvest, during a dearth of raw material of such a nature as to bring the industry to a standstill, during changes of fashions which make stores of goods unsaleable, and so on. War also must be included amongst the general causes of economic crises.

It is at once obvious that no general or single theory is possible for so varying and varied a phenomenon as crises, in the sense we have described. What we have to study in this Book is, not the whole of the possible disturbances of the economic life, but, as we have hinted, the general upward and downward movement of the economic life, especially in the features it has presented since 1870. Since that date many of the older causes of crises have generally ceased to act. The crises that fall within the period considered here have to some extent a common character, and they are in the main an outcome of the causes which are responsible for the ordinary and increasingly interconnected fluctuations of the economic life; whereas the more casual conditions which generally governed the earlier crises disappear more and more. The close observer of the economic history of the nineteenth century cannot fail to see a gradual change in the character of the phenomenon we call a crisis. This change, however, did not go so far as to bring out clearly the new type of crisis and conjuncture-movement until the seventies. On this ground there are certain objections to theories of modern conjuncture-movements which built too much upon material from the history of the earlier crises, and we are fully justified in confining our inquiries to the period after 1870.

On the other hand, the outbreak of the Great War brought this period to a sudden end. When normal conditions have been restored, we shall probably again see trade-movements analogous to those of the period 1870-1914, and we shall then probably find it of great practical advantage to have thoroughly studied the said period. But the decade after 1914 will permanently represent a discontinuity of development, and the whole statistical material will have to be arranged again upon a fresh basis. For these reasons the period 1870-1914 seems to be an isolated period with very natural limits.

There are, of course, also in this limited period casual disturbances of the kind we have described, although, as we said, many of the causes of earlier crises have now very little vitality. But, as we direct our attention here to the larger upward and downward movements of the world-system, we, as far as possible, ignore all casual and small disturbances, all that are local in their effects and confined to certain trades.

We must not overlook the fact that the period we are considering also represents a period of transition with far-reaching economic changes. During that period the old self-regarding agriculture comes finally to an end, and production based upon division of labour and the system of exchange attains its modern perfection. It is quite to be expected that a revolution of this character will entail great economic disturbances. Hence all views of modern good and bad periods and crises as necessary concomitants of the modern productive and social order are premature. Theory must not start *a priori* with the assumption that it has to find the whole and final explanation of the movements in question in the nature of the economic order we have attained, but it must pay attention also to the significance of the transition to this economic order. We are still in a period of transition, and we must wait to see what influence upon the said movements the close of the transition will show. The old thesis, that crises were progressively more injurious, is already antiquated. In the most progressive and economically best educated countries, in which some of the worst of the earlier causes of crises (an unsound banknote policy, for instance) have been mastered, the available material points rather to a weakening of crises. We must, therefore, leave the question open at present how far the great economic fluctuations which we are to consider are connected with the revolution—a revolution unique in itself—of the socio-economic order, and how far we should expect that they will decrease in strength at the close of it.

But before we approach the study of the movements of the economic life under the influence of conjunctures, we must come to an agreement as to the chronology of these conjunctures: in other words, we must settle in what year the conjuncture passed from a period of advance into a depression. In settling this we take up no *a priori* position in regard to our problem. Assigning the point of time to which we must trace the economic changes is really a question of terminology. We must, in deciding the question, only lay stress on our determination to keep as closely as possible to what is generally recognised. Happily there is on this point no difference of opinion. In what follows we take 1873, 1882, 1890, 1900, and 1907 as crisis-years, or, in order to emphasise the change from advance to decline, "years of turning-point." In our diagram we shall indicate these years by thick vertical lines, which we may call "turning lines."

In thus determining the crisis-years, however, we must bear in mind that in different countries there may be different dates of the crisis. These differences are only of material importance as regards the United States, where the crises of 1890 and 1900 were delayed until 1893 and 1903 respectively.

Although this chronology is generally accepted, it will not be out of place to show the reasons for it. If we define the crisis as a time of general inability to meet obligations which fall due, we must take an extraordinary

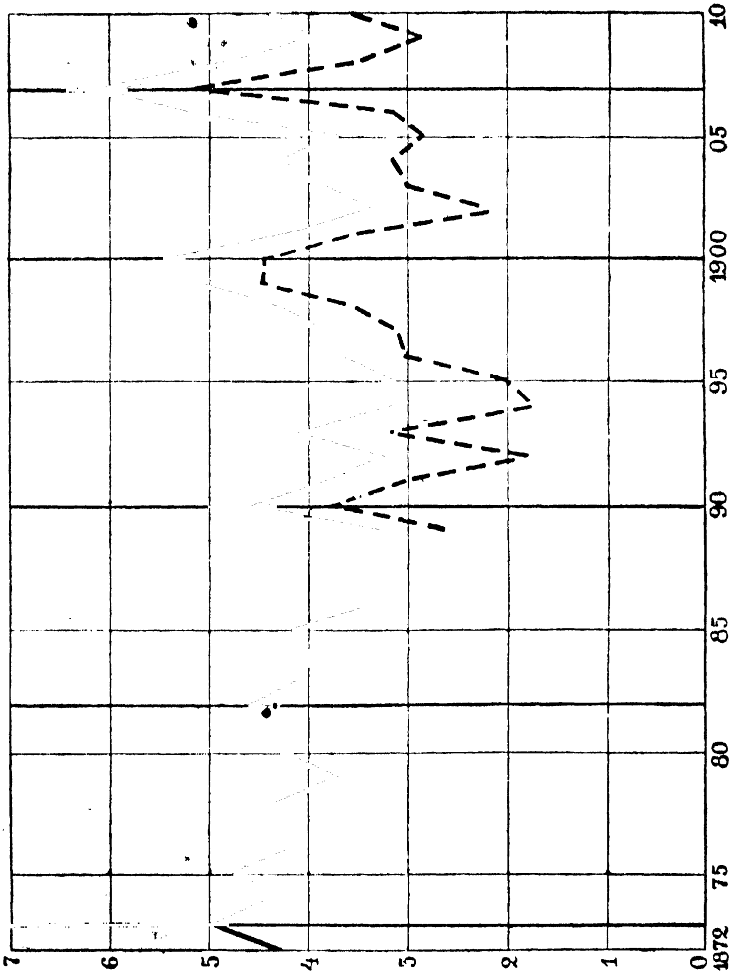

FIG. 6.—BANK-DISCOUNT ——— AND MARKET-DISCOUNT - - - AT BERLIN.

strain of the money market—a contraction of the terms for short loans, especially the discount rates—as the first external mark of the crisis. The statistics of the discount rate show infallibly that the maxima of these rates always

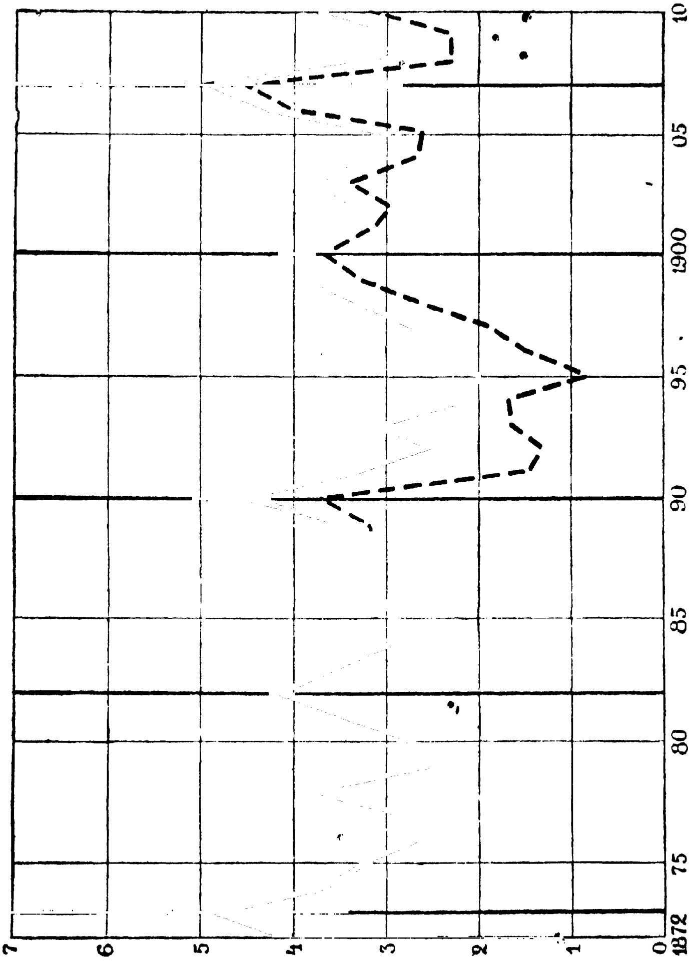

FIG. 7.—BANK-DISCOUNT —— AND MARKET-DISCOUNT - - - AT LONDON.

fall in the crisis-years we have enumerated. The best way to convince ourselves of this is to glance at the diagrams (Figs. 6 and 7), in which the continuous line represents the bank-discount, and the dotted line the market-discount, for Berlin and London.*

A closer study of the connection between the conjuncture-movements and the discount-rates properly belongs to a later stage of our inquiry. Here we need only point out that the extraordinary strain of the money market which is always connected with the idea of a crisis did actually occur in each of the "crisis-years" we have enumerated.

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* The figures upon which the diagram is based are given in Table IV. in the Appendix.

CHAPTER XIV

THE INFLUENCE OF CONJUNCTURES ON PRODUCTION

§ 63. THE CHIEF BRANCHES OF PRODUCTION DURING CONJUNCTURES.

WE now proceed to study those changes in economic production which make their appearance in the various phases of a conjuncture. We must, for this purpose, distribute the productive activity into its main branches and observe the particular effect of conjunctures upon the various kinds of production.

Production is, as we know, divided into two main branches: the production of fixed capital and the production of goods which pass directly into the system of consumption. In both cases there is an intermediate stage, a connecting link, in the productive process: the production of materials and half-manufactured products and the production of things used in production. The materials and half-manufactured products—pig-iron and rails, cotton and cotton-yarns, material like coal for providing power, which we have put together under the head of " circulating capital," are, so to say, only symptoms of the continuous process of production, which technically ends in the creation of a fixed capital or a commodity that passes into the consumptive system. We must therefore assume that the production of circulating capital is adjusted to one or the other main branch of production, at least in the first place, according to the volume of this branch. Hence in our study of the effect of conjunctures upon production we have only to distinguish between the production of fixed capital and the production of goods which pass directly into the consumptive economy. For brevity, we will call these two branches " production of capital " and " production of goods for consumption." As to the range of each species the production of certain kinds of circulating capital will, as we shall soon see, be our best guide.

First let us consider the production of capital. The most important fixed capital in the modern economy consists, as we have seen, of buildings and railways. Hence in ascertaining the influence of conjunctures upon the production of capital, we must consult statistical data as to the construction of houses and railways.

In regard to the former we have for the United States statistics of the sums devoted annually to building in the fifty-two leading cities. The figures are for calendar years, in millions of dollars:*

Year.	*Million Dollars.*	*Year.*	*Million Dollars.*
1904	469	1909	772
1905	645	1910	726
1906	679	1911	688
1907	646	1912	739
1908	566	1913	660

The figure for 1907 is increased by $20,000,000 by the inclusion of three new cities in the statistics. It is, however, clear from the table that there was a great increase of building in the years preceding 1907. The annual maximum falls in the year before the crisis-year 1907. During the subsequent depression building shrank rapidly. In a single year the sum devoted to it was reduced by $80,000,000, or 12·4 per cent. of the amount that had been reached in 1907.

In the following year, 1909, when there was another advance, as sudden as it was brief, in the United States, the sum devoted to building rose by no less than $106,000,000. The next two years brought a severe reaction. A new maximum was reached in 1912, or, once more, in the year before the new turning-year of the conjuncture of 1913. The period of advance is therefore characterised by an increasing building activity, the depression by the reverse. The maximum of production is reached a little before the end of the high conjuncture.

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* *Statistical Abstract of the United States.*

A similar effect of conjunctures upon building can be traced in Germany. The volume of memoranda to the reform of the Imperial finances of 1908 gives *statistics of the amounts insured in the public fire-insurance companies with compulsory rights.*[*] (We give the figures, abbreviated, in millions of marks.) The fluctuation of these figures from year to year gives us a general idea of the changes in the rate of building.[†] We see that the increase in insurance-sums reached a pronounced maximum in the years 1882, 1891, 1901, and 1904, and therefore that the highest points almost coincide with those of the high conjunctures. In some cases, however, the maximum of increase is a year late: the meaning of which is that a brisk building activity in one year is only shown in a corresponding increase of the insurance figures in the following year. The maximum of the year 1904 points to a special advance outside the general and large conjuncture-movement.

The construction of railways has long been regarded as a good test of conjunctures. It is, however, unmistakable that the economic character of railway-construction in the leading countries of Western civilisation has changed to some extent. To-day the centre of gravity in these countries lies rather in increasing the transport-capacity of the old lines than in making new lines. This change seems to some extent to have lessened the effect of conjunctures upon this type of construction.

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[*] *Reichstag.* 12 Legislatur-Periode, I. Session, 1907–1909, No. 1,043, Teil III., "Materialien zur Beurteilung der Wohlstandsentwickelung Deutschlands im letzten Menschenalter," p. 35.

[†] The average per cent. growth of the insurance-sums in the thirty-year period 1876–1906 is 3·05. This figure agrees with the percentage of the general economic progress which we have found characteristic of the period.

Year.	*Amounts of Insurance.*	*Year.*	*Amounts of Insurance.*
1875	14,281	1891	22,742
1876	15,135	1892	23,120
1877	15,756	1893	23,836
1878	15,696	1894	24,572
1879	16,079	1895	25,275
1880	16,293	1896	25,639
1881	16,681	1897	26,500
1882	17,983	1898	27,529
1883	17,478	1899	28,520
1884	17,868	1900	29,349
1885	18,314	1901	30,780
1886	18,719	1902	32,123
1887	19,487	1903	33,667
1888	20,151	1904	35,414
1889	20,855	1905	36,792
1890	21,445	1906	37,209

The development of railway-construction in the United States is particularly interesting.* Ever since the middle of the nineteenth century the history of railway-construction there has been also the history of crises. Constructions in the fifties, for instance, which reached their height with 3,642 miles of new lines in 1856, lost their upward movement with the crisis of 1857, and sank annually until they reached their lowest point (660 miles) in 1861. At the close of the sixties the construction of railways became brisk once more. In 1871 the new lines opened amounted to 7,379 miles. From this point there is a decline until 1873, when a little over 4,000 miles of new lines were opened. In 1875, however, the figure dropped to 1,711 miles. At the close of the seventies and beginning of the eighties there was more construction, and in 1882 the enormous figure of 11,569 miles was reached, to be followed by a drop to 2,975 miles in 1885. These figures bring out very clearly the connection between railway-construction and conjunctures. The periods of advance are characterised by unusual activity in the construction of lines, and this activity reaches its maximum in the year of crisis or just before it. On the other hand, in what we have called periods of decline railway-construction falls to a minimum.

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* *Statistical Abstract of the United States.*

After the depression in the middle of the eighties there was a great advance in railway-construction in the United States, which culminated in a total of 12,876 miles in 1887; and this was maintained until 1893 with a good deal of construction. In the nineties, however, the increasing of the transport-capacity of the old systems seems to gain increasingly in importance in comparison with the opening of new lines. The statistics published by the Interstate Commerce Commission in 1890 give us some insight into this development.* These statistics give the total length of lines laid down, and the figures are given separately for the first, second, third, and fourth line and for station-lines. The annual increase (in thousands of miles) of the total length of lines is, on this material, as follows for the years 1891-1907 (fiscal year to June 30th):

Year.	*Thousand Miles.*	*Year.*	*Thousand Miles.*
1891	7·6	1901	6·6
1892	3·6	1902	8·8
1893	10·8	1903	9·6
1894	7·9	1904	13·3
1895	3·5	1905	9·7
1896	5·9	1906	10·3
1897	2·9	1907	10·9
1898	3·3	1908	5·7
1899	4·8	1909	8·7
1900	8·6	1910	9·4

We must bear in mind that the years given in the figures end on June 30th for each year. It then appears that the three years of advance which end in the crises of 1893, 1903, and 1907 are characterised by a great increase of new lines, while the periods of decline after the crises are just as clearly characterised by a reverse movement. In the period covered by our statistics the length of the first line has fallen much below half of the total length, so that the additional and station-lines surpass it. For instance, the length added to the first line in 1907 amounted to only 5,100 miles, while the addition to the others was 5,800 miles. This shows that the statistics relating to the extension of the first line are not sufficient for testing the effect of conjunctures upon railway-construction.

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* *Statistical Abstract of the United States.*

The new character of railway-construction is seen, not merely in the increased demand for additional lines, but in the general development of the old systems: the profile of the lines is improved, sharp curves are abolished, wooden bridges and viaducts are replaced by steel. The annually reconstructed bridges and viaducts alone on the larger systems must be reckoned in miles. All this work was clearly necessitated by the great progress of trade. It has, therefore, a much less speculative character than the construction of railways in earlier times had, when their object was mainly to open up new districts as rapidly as possible. We are probably justified in assuming that the change in the character of railway-construction that has taken place will gradually weaken the influence of conjunctures upon the sphere of production we are considering.

In a country like England railway-construction has certainly not come to a standstill, yet the development is quieter than formerly. The annual increase of the paid-up capital of the English railways is now often less than 1 per cent. of the whole, and in the period 1901-1911 it never exceeded 2 per cent.* The fluctuations from year to year do not show any striking connection with conjuncture-fluctuations. In earlier periods, however, railway construction in England is very significant in connection with the study of conjunctures.

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* "Paid-up Capital of Railway Companies" (*Statistical Abstract for the United Kingdom.*)

In many new countries railway-construction has still the character which it had during the earlier period in our older countries. Hence statistics giving in kilometres the length of new lines opened throughout the world do not convey a correct idea of the significance of railway-construction. This is all the clearer when we bear in mind how much the cost of construction per kilometre differs in different countries. This makes it very difficult for us to form a general idea of the influence of conjunctures upon railway-construction.

While, therefore, one can prove that conjunctures show a certain influence in the construction of houses and railways, and in the sense that the production of capital in these spheres increases during periods of advance and falls during periods of decline, the result is obtained from isolated observations which may not be representative, in the selection of which different circumstances cannot all be equally taken into account, and which, especially, do not enable us to measure the influence of conjunctures. We must rather try to find a production that can represent the entire production of fixed capital, which quantitatively reflects the fluctuations in the production of capital, and from the fluctuations of which one can deduce corresponding fluctuations in the production of capital. For this purpose we must leave the production of definite concrete objects of capital, and turn our attention to the materials which are generally used in the production.

If we ask what are the chief materials of which fixed capital consists in the modern economy, we soon find that they are iron, wood, and stone (including bricks and cement). Of these iron is by far the most important. Modern technical developments have given it this paramount importance as material for fixed capital. In earlier times it was mainly used for making tools. Technical advances in its manufacture made it possible to use iron for building purposes in the first half of the nineteenth century, but it was not until the Bessemer, Siemens-Martin, and Thomas processes were introduced that the race entered upon the "iron age" in the modern technical sense. From the seventies onward it was used extensively in constructions of every conceivable kind. It is now the chief material not only for railways, including bridges, viaducts, stations, and rolling stock, but for ships (including sailing ships), buildings, factories, and even houses. Since the Thomas process made it possible to produce iron girders cheaply, it has been used considerably in the building of houses. Even a small house can scarcely be built to-day without iron girders coming in somewhere. Then there is the extensive use of iron for pipes, either in the house or leading into it from the street. When we keep all this in mind, we see that iron is not merely beyond question the most important material of fixed capital, but is so generally used as such that the consumption of it is a very good measure of the entire production of fixed capital. It might be objected that a certain amount of iron is used in the production of goods for consumption. But if we calculate the consumption of iron, not in value, but in tons, the amount that is used for making razors, skates, etc., is insignificant, and need not be considered. The annual production of iron may be taken as a measure of the annual production of fixed capital.

Iron assumes a great variety of forms. In practice, however, all iron, at least under technical conditions up to the present, passes through the stage of pig-iron. Hence the statistics of the production of pig-iron afford the measure we need of the total production of capital. These statistics have the further advantage of being fairly available for the whole world, and so they enable us to draft a curve that reflects the world-production of fixed capital.

In our diagram (Fig. 8)* the world-production of pig-iron is represented by curve A. A glance at this curve shows that its highest points always coincide with the turning-point lines: in other words, that the maxima of iron-production coincide with the culminating points of the conjunctures. Before each turning-point line there is a considerable increase in the output of iron, and after it a fairly regular diminution of output. And as the production of iron represents the entire production of fixed capital, we see that there is a special increase of capital-production before each turning-point and a decline afterwards. This justifies our use of the terms "periods of advance and decline." We may now precisely define

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* The numbers on the left of the diagram represent the world-production of pig-iron in millions of tons. The statistical data on which the curve is based are given in Table V. in the Appendix.

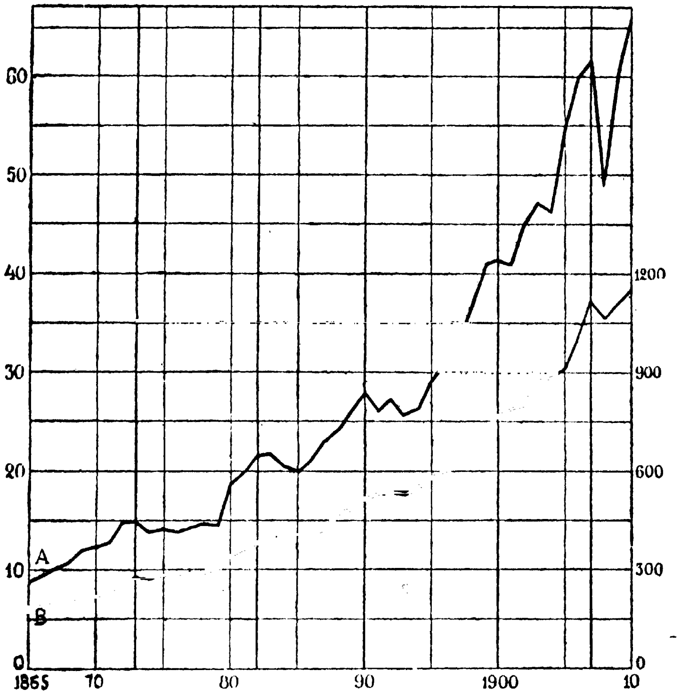

FIG. 8.—WORLD-OUTPUT OF PIG-IRON (A) AND COAL (B) IN MILLIONS OF TONS.

these ideas. *A period of advance is one of special increase in the production of fixed capital; a period of decline, or a depression, is one in which this production falls below the point it had reached.*

The production of pig-iron rose from about 9,000,000 tons to about 66,000,000 tons in the period from 1865 to 1910, which means an average annual increase of 4·5 per cent. The increases during the periods of advance rise to 30 and 40 per cent. The decline in the periods of depression is usually smaller; it is generally under 10 per cent., and only in 1908 sinks to about 20 per cent.

We may, therefore, regard it as settled that conjunctures influence the production of fixed capital, and how they do so. But it is not enough to know this. We must know also whether the effects are the same upon other production, or if they are different, perhaps opposite. We must, therefore, inquire how the production of goods which pass directly into the sphere of consumption behaves in the various conjunctures. We might try to quote various commodities and make them the objects of this inquiry. But such a method would greatly expose us to the risk of basing our selection too much upon casual things, and thus our conclusions as to the dependence of the production of goods for consumption upon conjunctures would not be sufficiently convincing. Here again we must take a single article that may stand for the entire production.

Before we attempt this, we must recall that one large province of production for consumption is excluded of its very nature. In regard to agriculture it is the weather-conditions that play the chief part. Agricultural production varies at every harvest and has no direct connection with conjuncture-movements.

Excluding agricultural production, we have, as regards the remaining production, one article that is of such general importance that it may be used as a measure of the whole. This is coal. Coal is also used to a great extent in the production of fixed capital, and therefore the curve of the coal-output will not give us a clear-cut picture of the production of goods for consumption. Yet a comparison of this curve with that of pig-iron will be very instructive. Coal is not only used for material productive purposes in the strict sense, but also for the direct satisfaction of certain requirements, such as heating and lighting our houses and transport of passengers by rail and tram. From our point of view this is an advantage, as it makes the coal-output a measure also for the whole sphere of production to meet material requirements. In the diagram (Fig. 8) the world's coal-output is represented by curve B, which gives the totals in millions of tons (numbers on the right).

This curve shows regular increases in the periods of advance, but, as a rule, no decline, or very little decline, in periods of depression. On the whole, it has, as will be seen at a glance, a much more even course than the pig-iron curve. We suspect the influence of conjuncture, but it seems very probable that this influence is non-existent, or is at least substantially neutralised, if we could make a deduction for the coal-output that is required for the production of pig-iron and the iron industry generally. We seem to be justified in concluding, therefore, that the coal-output which is employed in production for consumption really increases very steadily and shows no pronounced dependence upon conjunctures. The only decline of any real significance is in the year 1908, following upon the extraordinary increase of 1907. But it is plain that this decline must be attributed to the enormous decline in the output of pig-iron in that year, and that the coal-output for other purposes than the iron industry was very little affected by the conjuncture of 1907 and the subsequent depression.

Hence a comparison of the two curves of production leads to the conclusion that conjunctures have a pronounced influence on the output of pig-iron, but that we can scarcely trace any such influence as regards the coal that is used in the production of goods for consumption. This result may, after what we said about the significance of our curves, be further interpreted to mean that the production of fixed capital depends essentially upon conjunctures, whereas *the production of articles which pass directly into the system of consumption shows no pronounced dependence upon conjunctures. This means that the change from periods of advance to periods of decline is in its innermost nature a variation in the production of fixed capital, but is not directly connected with the rest of production.*

This thesis is clearly of such fundamental importance to the whole theory of conjunctures that we must not fail to test it by all the means at our disposal. First let us compare the production of pig-iron and coal in a single country—Germany. The relevant curves are given in the diagram (Fig. 9).* As regards the production of pig-iron (curve A), in the case of Germany it shows a comparative advance considerably greater than the general advance in world-production. Hence the periods of advance are very pronounced in the German pig-iron output. After the turning years 1873, 1900, and 1907 we also find pronounced depressions. On the other hand, there is no reaction after 1890; and after 1882 we do not find a reaction until 1886, when it is slight. The coal-curve runs very evenly on the whole. It shows few and inconsiderable reactions: namely, 2·7 per cent. in 1876-7, 1·8 per cent. in 1891-2, and 1·5 per cent. in 1901-2. This comparison of the German coal and iron output must be regarded as a strong confirmation of our conclusion.

In the United States the fluctuations of the pig-iron output have, as is well known, always been very great. From 1890 to 1894, for instance, the output fell from 9,200,000 to 6,700,000 tons. But the production of coal in the United States has been much steadier. During the period from 1870 to 1907 it shows no decline of more than 9 per cent. In the year 1908, when the iron output fell 38 per cent. below that of 1907, there was naturally a considerable decline in the coal-output, yet it was only 13·4 per cent.†

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* Figures in the Appendix, Table V.

† *Statistical Abstract of the United States.*

It is obvious that England must, on account of its large exports of coal, show comparatively large fluctuations of the output. The worst decline was from 1891 to 1893, and amounted to 11·4 per cent. The production of pig-iron had, however, fallen by 19·4 per cent. from 1889 to 1892. The decline in pig-iron output from 1882 to 1886 of 18·3 per cent. is accompanied by a fall in the coal-output of 3·8 per cent. from 1883 to 1886.

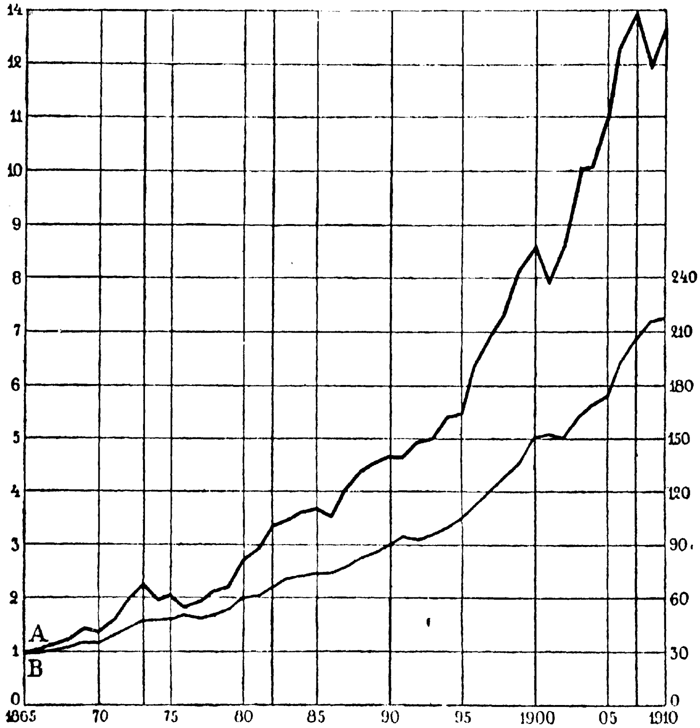

Fig. 9.—Germany's Output of Pig-Iron (A) and Coal (B) in Millions of Tons.

Now let us test our conclusion in another way. The statistics of goods traffic on the railways of certain countries enable us to divide the total tonnage according to the classes of goods. We may make the division in such a way as to keep on one side the commodities which mainly serve as the material of fixed capital and on the other all the remaining commodities. For Germany we have done this by comprising cement, iron, wood, and stone (classes 7, 11-20, 31*a* and *b*, and 59 in the official

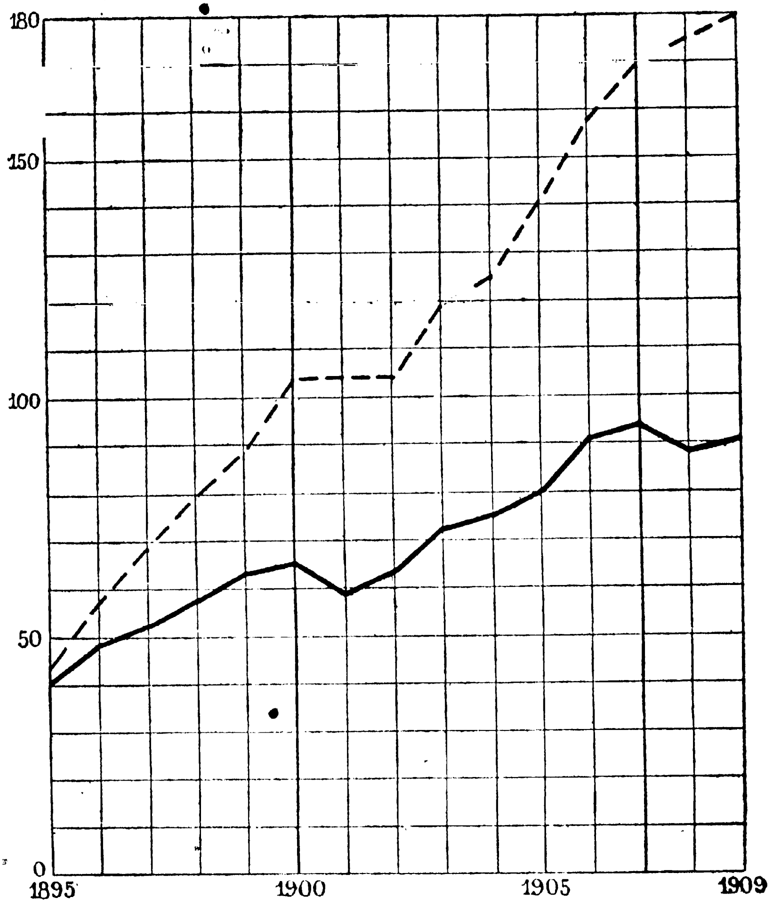

FIG. 10.—TRANSPORT OF GOODS ON THE GERMAN RAILWAYS. MILLIONS OF TONS. ——— CAPITAL GOODS. - - - OTHER GOODS.

statistics) under one head as material of fixed capital. The tonnage for these is subtracted from the total tonnage of goods conveyed. We thus get the tonnage of "capital goods" and "other goods." (See Table VI. in the Appendix.) If we examine these statistics, which go back to 1886, we find the capital goods rising considerably until 1889, and no reaction after the turning year 1890; a result that agrees with the curve of German production of pig-iron. For the group "other goods" we notice a decline of 127,087 to 124,766 tons from 1891 to 1892, or about 1·8 per cent. For the period from 1895 to 1909 the development is given on the diagram (Fig. 10). The lower, continuous line represents the tonnage of "capital goods" in millions of tons. The upper, dotted line shows in the same way the tonnage of the "other goods," but for convenience it has been lowered 100. This latter curve shows, as we see, no reaction, while the curve of capital goods has pronounced reactions after the turning years 1900 and 1907. The diagram, therefore, confirms the connection which we found to exist between conjuncture-movements and the production of fixed capital, and it also makes clear how much less the remaining production is influenced by conjunctures, although the group "other goods" is naturally not quite free from the material of fixed capital.

A similar inquiry may be made as regards the United States. We will consider only the high conjuncture of 1894 to 1907.* We find an increase of tonnage of goods carried from 1,310,000,000 to 1,796,000,000 tons, or 37 per cent. Of the various classes of goods that are specified in the statistics those given on p. 527 are above the average advance by the percentage stated.

Below the average of increase are the great groups of agricultural and animal products, which are 21 and 9 per cent. For domestic articles the advance is 21 per cent. Sugar even goes back 3½ per cent. Unfortunately, we cannot follow the matter any further, as the statistics were changed in 1908. However, the figures quoted confirm that the period of advance means a considerable rise in the production of capital goods, but the remaining production scarcely shows any advance beyond the usual standard.

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* *Statistical Abstract of the United States.* It must be borne in mind that the year ends on June 30th.

Goods.	*Per Cent.*	*Goods.*	*Per Cent.*
Coke	75	Machines, etc.	49
Ore	92	Iron bars and lead ..	76
Stone, etc.	54	Cement, bricks, and lime	58
Rails	42	Waggons and rails ..	48

We have now shown that the production of fixed capital reflects the conjunctures in its periods of advance and decline, and it remains to settle, as closely as we can, when the decline of production begins. The culminating point of the crisis can generally be determined with some precision. The question is whether capital production—and, firstly, the production of pig-iron—falls at the time of the crisis, or a little earlier or later.

According to the figures collected by Pohle,* the output of pig-iron in the German tariff-region was (in thousands of tons):

Year.	*Thousand Tons.*
1906	12,422
1907	13,046
1908	11,814

Thus the annual statistics show no reaction for the crisis-year. When we study the statistics for the various months, we find that in 1907 the production for each month is higher than for the corresponding month of 1906. The output for January 1908 is practically equal to that of the corresponding month in the previous year, For February 1908 the output is higher than for February

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* *Monatliche Übersichten über die allgemeine Wirtschaftslage* (Supplement to the *Zeitschrift für Sozialwissenschaft*).

1907. In March there is a slight decline of about 52,000 tons, and in April there is a considerable drop (98,000 tons) as compared with the same month in the previous year. On the other hand, the daily output declines from December 1907. It is:

1907		1908	
September	36·4	January	34·2
October	36·7	February	34·3
November	37·1	March	33·8
December	35·7	April	32·7

It is clear, then, that the decline in the output of pig-iron did not occur until some months after the crisis, which, as is well known, began in September.

In the United States, where the crisis originated and was very acute, the decline in the production of pig-iron followed more rapidly upon the crisis. The daily output of pig-iron in 1,000 gross tons was in September 72·8, in October 75·4, in November 60·9, in December 39·8; and in January 1908 it reached its minimum, 33·7. As the crisis broke out in September, and was very acute in October, even in the United States the decline in the production of pig-iron came somewhat later.

CHAPTER XV

THE INFLUENCE OF CONJUNCTURES ON LABOUR

§ 64. CHANGES IN THE NUMBER OF WORKERS IN THE TWO MAIN BRANCHES OF PRODUCTION.

SINCE the essence of a conjuncture consists in an extraordinary production of fixed capital and a subsequent rapid decline of the same, these movements are bound to be reflected in changes in the number of workers employed in the production of capital. If it is true that conjunctures have no material influence on the rest of production, the fact must come to light in a more uniform advance in the number of workers in these other industries. In this connection we also have the question: Whence do the capital-producing industries draw the additional labour which they need in rising conjunctures, and what becomes of the workers whom the industries cannot employ in times of depression? There is question here, it is clear, of a general inquiry into the movements of the workers under the influence of conjunctures.

Unfortunately, this element, which is so important for our knowledge of conjunctures, as well as from the general social point of view, seems not to have been specially regarded up to the present in official statistics. However, we can get certain statistical data for some countries which throw a light upon the phenomena we are considering.

In the case of Sweden the official factory statistics* for each year give the number of workers divided into various groups of industries. We will take here those groups of industries which in the main serve for the production of fixed capital, and so calculate the total number of workers employed in these industries. The industries that come under this head are the timber, stone and building material, and iron and steel industries. The total number of workers in these industries can be calculated, from the available statistics, for each year after

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* *Sveriges officiella Statisik*, D., " Fabriker och Handtverk."

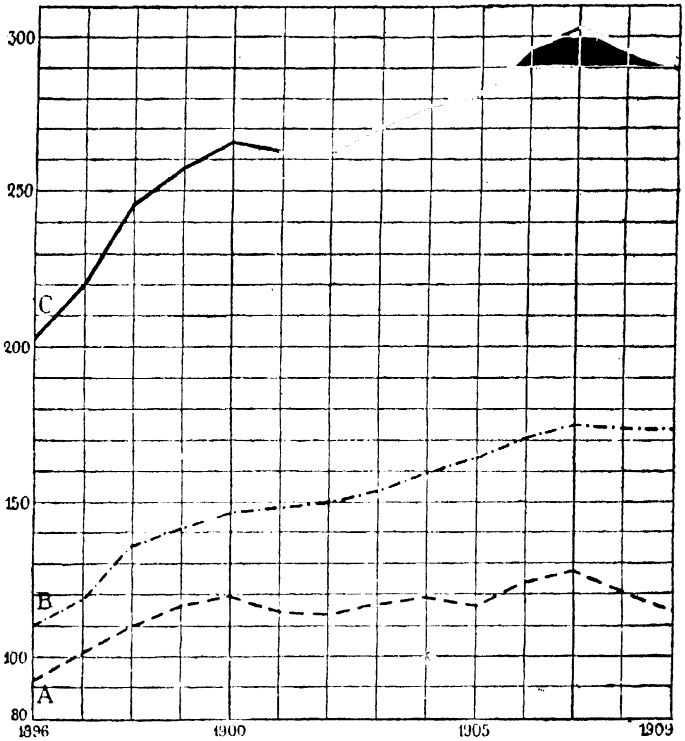

Fig. 11.—Factory Workers in Sweden. A. Capital-Producing Industries: B, Other Industries: C, Total Industry.

1896. This number is represented on the diagram (Fig. 11) by curve A. Curve B indicates the number of workers in the other industries, and curve C the total of industrial workers, or the sum of A and B.* Curve C shows for the two turning-point years 1900 and 1907 the characteristic sharp points of a high conjuncture. When we examine the origin of these sharp points, we find that they are almost entirely due to fluctuations in the number of workers in the capital-producing industries. The curve of these industries shows very marked reactions both after 1900 and 1907, while the curve of the other industries maintains its advance after 1900, though at a more moderate pace, and only falls a little after 1907. The variations of the curve of the capital-producing industries are expressed in figures as follows:

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* The figures are given in the Appendix (Table VII.). Miners and foundry-workers are not included amongst the industrial workers.

Years.	*Rise.*	*Years.*	*Fall.*
	Per Cent.		Per Cent.
1896–1900 ..	29·5	1900–1902 ..	5·1
1902–1907 ..	12·9	1907–1909 ..	10·0

Curve B, of the other industries, shows not a single reaction before 1907, and in the great strike-years 1908–1909 a reaction, as compared with 1907, of only about 1,000 workers, or 0·56 per cent.

Hence our conclusion, that the conjuncture-movements are merely an expression of fluctuations in the production of fixed captial, is fully confirmed by the statistics of the number of workers in the industries of Sweden.

A similar study can be made in the case of Germany by examining the number of persons insured against accident in the various " Insurance Guilds." The figures are given in the official reports of the Imperial Insurance authorities in the *Statistisches Jahrbuch für das Deutsche Reich*. In regard to the character of these figures we may quote the following remarks of the officials: " The object of the returns is to give annually an approximate idea of the number of the employees and workers who are covered by the insurance against accident. It is, therefore, not a question of average figures in the strictly scientific sense.

We have not to work out an accurate mean of the number of insured employees and workers actually engaged in the year above or below the number of regular workers, but to give the number of persons which the trade has regularly kept in full or current (normal) occupation in the year of the calculation. A spinning-mill, for instance, which needs to employ as a rule 200 (though sometimes more, sometimes less) insured officials and workers daily to produce what is taken to be the normal daily output during the year in question, will . . . be taken as employing 200 persons. . . . The introduction of additional help to assist the average staff of workers for a short time is not taken into account, even if it is done every year. . . . "Insurance Guilds," which know the full number of days worked in the year in question, can ascertain the average number of the insured by dividing the sum of days worked by the number of days on which work is done, as a rule, in the branch of industry in question." *

This feature of the statistics of insured persons in the Guilds seems, on the whole, suitable for our purpose. We want to know how the conjuncture-movements affect the number of employed workers from year to year, not how the number varies from day to day from accidental causes.

In order to get an idea of the number of workers employed in the capital-producing industries we have to add together the insured persons in the Guilds of the iron, steel, quarrying, brick-making, and building industries. By subtracting this sum from the total of insured persons in the industrial Guilds we get the number of insured persons in the "other" Guilds.

This division of Guilds into "capital-producing" and "other" makes no claim to accuracy. The iron industry, for instance, in part produces commodities that are not to be counted as fixed capital. On the other hand, there are amongst the "other industries" some

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* *Amtliche Nachrichten des Reichs-Versicherungsamts* (1902), p. 629, Ziffer 4.

which, to a greater or less extent, produce fixed capital or material therefor. We may instance the mining, fine engineering, electrical, glass, chemical, and smith's industries. But for our present purpose it is enough to be able to separate the great mass of the workers employed in the capital-producing industries from the other workers. The different sensitiveness of the two main branches of industry to conjuncture-movements will become quite clear when we thus divide the workers.

The workers in the capital-producing industries are about 40 to 45 per cent. of the whole of the Guild-insured workers. If the division were quite accurate, they would probably prove to be about one-half of the whole of the industrial workers. A closer study, based upon a thorough knowledge of the various Guilds, of the effect of conjunctures upon the number of workers would certainly be interesting from many points of view.

On our next diagram (Fig. 12) curve C indicates the whole of the insured persons in the industrial Unions for every year from 1888 to 1909.* The high conjunctures of 1900 and 1907 can be clearly traced in the relevant points of this curve. The conjuncture of 1890 seems to continue into 1891, but there is no reaction perceptible afterwards. But when C is broken up into curves A and B, of which it is the sum, A representing the capital-producing industries and B the others, we find that the sharp points of curve C are referable entirely to the corresponding points of curve A. Curve B has no such points, and on the whole it runs as evenly as the course of an economic development can ever be supposed to do.

Thus the effects of the conjunctures, in so far as they appear in the number of employed workers, and as far as Germany is concerned, are scarcely noticeable in the group of "other industries," but very pronounced in the "capital-producing industries." The descents of curve A after the high conjunctures plainly mean a corresponding amount of unemployment in the industries in question. In the "other industries," taken as a whole, there is, as the diagram shows, no unemployment as a consequence of general conjuncture-movements. We shall presently go more closely into the unemployment which can be traced to such movements, but we may state here that it, like the general conjunctures themselves, must on the

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* For the figures see Table VIII. in the Appendix.

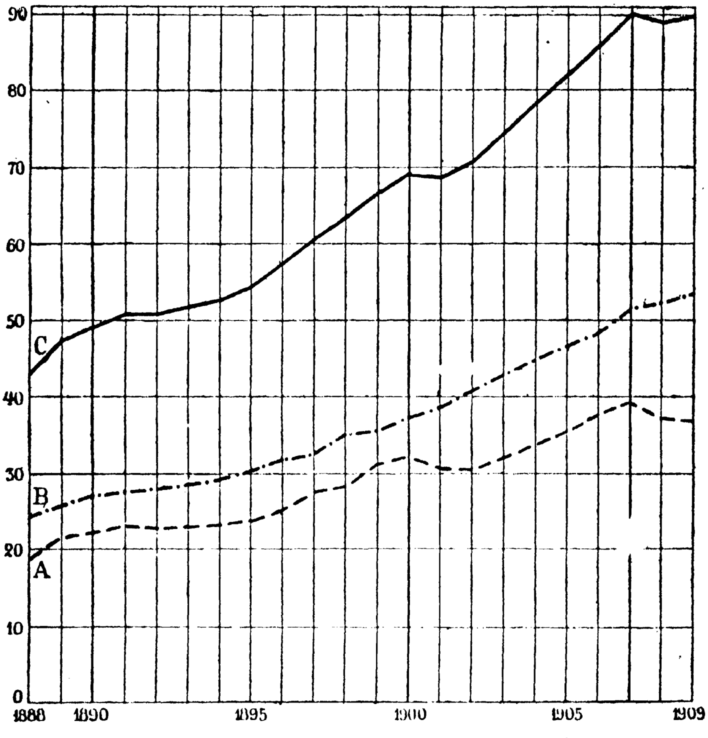

FIG. 12.—INDIVIDUALS INSURED IN THE GUILDS. A, CAPITAL-PRODUCING INDUSTRIES: B, OTHERS: C, ALL.

whole be put entirely to the account of the production of fixed capital.

Let us examine a little more closely the development of the capital-producing industries in Germany. In the three high conjunctures included in our statistics the number of workers rises as follows: from 1888 to 1891 by

24·49 per cent. (in arithmetical average, 8·16 per cent. per year), from 1894 to 1900 by 38·29 per cent. (6·38 per cent. per year), and from 1904 to 1907 by 16·05 per cent. (5·35 per cent. per year). For the other industries the percentages of the rise for the same periods are 12·6, 27·4, and 12·3; much lower in every case than in the capital producing industries. The latter have a period of unemployment after a high conjuncture, in the sense that the number of employed workers is smaller than the maximum number reached in the preceding high conjuncture. At the beginning of the advance, not only are the unemployed absorbed, but new workers are engaged in great numbers. Where do these come from? The natural increase of population in the groups of workers in question is not enough. For the whole German Empire the births exceeded the deaths per 1,000 inhabitants by 11·7 in 1881–1890, by 13·9 in 1891–1900, and by 14·3 in 1901–1910. In the twenty-one years from 1888 to 1909 the annual increase of the population averaged 1·34 per cent. As the number of workers in the capital-producing industries increased annually by 5 to 8 per cent. in the high conjunctures we can see that during high conjunctures an addition from without must have been necessary. After the high conjuncture of 1891 there was a period of unemployment which spread over 1892 and 1893. It ceased in 1894. In 1895 the natural growth of the population in the groups of workers in question was sufficient to meet the demand for labour, but from 1896 to 1900 there must have been an accession from without. The depression at the beginning of the present century was accompanied by a spell of unemployment that spread over the years 1901 to 1903. But the year 1904 absorbed the unemployed, and the high conjuncture of 1905–1907 required a considerable accession from without to meet the demand for labour.

It follows from this that the demand for workers at the beginning of the period of advance may be met by the absorption of the unemployed of the period of depression, or that, at all events, the process may arithmetically be conceived in that way, whereas the real high conjuncture essentially depends upon an accession from without to cover its demands for workers.

This result, which puts the theory of “the industrial reserve army” in its proper light, is confirmed by the study of the various industries in which we can statistically ascertain the number of workers. The pig-iron industry, which may, in virtue of what we have said, be taken as representative of the entire production of fixed capital, shows the following development of the average number of employed since 1885:*

Year.	*Employed.*	*Year.*	*Employed.*
1885	22,768	1898	30,778
1886	21,470	1899	36,334
1887	21,432	1900	34,743
1888	23,046	1901	32,367
1889	23,985	1902	32,399
1890	24,846	1903	35,361
1891	24,773	1904	35,358
1892	24,325	1905	38,458
1893	24,201	1906	41,754
1894	24,110	1907	45,201
1895	24,059	1908	43,532
1896	26,562	1909	42,227
1897	30,459	1910	45,324

We see that the unemployment of 1886–7 disappeared in 1888, and that the two years of the high conjuncture of 1889 and 1890 needed an accession from without. The period 1891–5 is one of unemployment, but this was absorbed by the brisker trade of 1896. For the period 1897–9 an accession from without was required. The subsequent depression made itself felt in a spell of unemployment that lasts from 1900 to 1904. In 1905 both the unemployed and, for the most part, the natural growth were required; and the intense development of 1906 and 1907 clearly necessitated a considerable addition from without. This addition again goes to the side of unemployment in the subsequent depression.

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* *Statistisches Jahrbuch für das Deutsche Reich.*

It is the same in the iron foundry industry. The average number of employed was as follows during the present century (in thousands of workers):

Year.	*Employed.*	*Year.*	*Employed.*
1900	95·9	1905	109·6
1901	85·7	1906	117·5
1902	84·5	1907	119·8
1903	87·8	1908	113·8
1904	104·6	1909	112·1

We see that the year 1904 absorbed not only the unemployment of the 1901-3 depression, but certainly also the entire natural increase since the high conjuncture, and in addition required an accession from without. This need of outside labour lasted during the whole of the high conjuncture until 1907. In the subsequent depression a small part of this addition was again discarded.

§ 65. THE AGRICULTURAL POPULATION AS A SOURCE OF THE ACCESSION OF WORKERS TO INDUSTRY.

As it is now settled that the high conjunctures are made possible only by the accession of workers to the capital-producing industries, the question may be asked: Whence do they get this addition, and can they rely upon such accessions in the future?

It is well known that the agricultural population in the industrial States of Europe has been in a position ever since the birth of industrialism to supply a material accession of workers to other branches of industry. The stream, however, which brought these contributions to industrial labour did not flow evenly. The capital-producing industries could not take in any outside labour in times of depression, and, on the other hand, they needed considerable increases during high conjunctures. Hence the surplus agricultural population was kept to some extent on the land during periods of depression—stored, so to say—until it would be absorbed by the capital-producing industries in periods of advance. These available stores of labour in agriculture formed the real "industrial reserve forces" of the capital-producing industries. It was these reserves which enabled high conjunctures to assume the proportions they have hitherto attained. This is not true of "the other industries"; at least to nothing like the same extent. The accession of outside labour to these industries has been much more even.

Let us now see how this process goes on in different countries.

In Germany the "industrial population" was divided into the three main occupations A, B, and C in the three census-years 1882, 1895, and 1907 as follows (in thousands):

	1882	1895	1907
A. Agriculture, etc.	19,225	18,501	17,681
B. Industry, etc.	16,058	20,253	26,387
C. Trade and transport	4,531	5,967	8,278

Thus the agricultural population absolutely decreased in the periods 1882–1895 and 1895–1907. The whole of the natural increase of the population, and a not inconsiderable part of the agricultural population of 1882 besides, abandoned agriculture. For the far greater part this surplus agricultural population joined classes B and C. We can get an approximate idea of the extent of this movement. The total population of the German Empire increased by 14·5 per cent. in the period 1882–1895, and by 19·22 per cent. in the period 1895–1907. If we suppose that the agricultural population increased at the same rate in the periods in question, in 1895 it should amount to 22,000,000, whereas the actual figure is 18,500,000: a loss of 3,500,000, or 270,000 a year. In 1907 the agricultural population would, if it had increased by 19·32 per cent. of its actual numbers in 1895, be 22,050,000; as a matter of fact, it stood at 17,680,000, and therefore between 1895 and 1907 it lost 4,370,000 persons, or 365,000 a year (1,000 a day). It is not necessary to point out that the only object of these calculations is to get a quite general idea of the proportions of the migration from agriculture to other occupations which we are considering.

This migration was not steady, but was to some extent concentrated in the high conjunctures. For instance, the whole of the Insurance Guilds were unable to take in any outside labour from 1892 to 1895, but from 1896 to 1900 they must certainly have attracted a million workers from outside, or about 200,000 a year: which obviously means a very much greater increase of population in these industries. It is only the storing of labour in the agricultural world during years of depression that makes it possible to meet this extraordinary demand for workers in high conjunctures.

In this connection it is especially interesting to inquire which sections of the agricultural population migrate to other occupations. According to the censuses of occupation of 1895 and 1907 there were in class A (agriculture, etc.), as "dependents, but of no special occupation" in the *a* and *c* populations, which correspond to the independent and employed (in thousands):

	1895	1907
a	6,550	5,144
c	3,141	2,350

or for 100 self-supporting:

	1895	1907
a	255	205
c	56	32

We see that the *c* population has so far reduced the number of its "dependents, but of no special occupation" that any further diminution seems to be impossible, at least for a considerable time. A population that has only 32 dependents to 100 self-supporting will clearly not be able to spare as much labour in the future as it did when it had a far larger number of this class. The *a* population also has lost a large number of its dependents. If the class of independent farmers is to continue to increase by births and have a proportionate share in the growth of the population of Germany, it does not seem possible to go much below the figure of two dependents to each self-supporting person. For the whole population of Germany the number of dependents to each 100 self-supporting sank from 131 in the year 1882 to 120 in 1895, and 100 in 1907.

Taken in all, dependents without any special occupation in agriculture fell by about 2,200,000 from 1895 to 1907. In the same period the class of "servants living in the house" fell from 375,000 to 164,000, a decrease of 211,000. Thus the two classes show a diminution of, altogether, 2,411,000 persons. On the other hand, the class of actively occupied persons increased from 1895 to 1907 by 1,590,000 (8,293,000 to 9,883,000). There was a net reduction of the total agricultural population by 820,000.

The process that is reflected in these figures is, clearly, a partial break-up of the agricultural family: a process that has gone farthest amongst the labourers of the agricultural class, but is greatly advanced also amongst the farmers themselves.

The development of the agricultural population in Sweden is given in the following figures:*

Year.	*Thousand Persons.*	*Per Cent. of Population.*
1870	3,095	72·1
1880	3,093	67·7
1890	2,943	61·5
1900	2,795	54·4
1910	2,674	48·4

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* *Statistik årsbok* (Stockholm).

Here also, therefore, there has been a considerable relative decrease of the agricultural population since 1870. Since 1880 there has been an appreciable positive reduction. The phenomenon is due primarily to a reduction of the chief family-forming classes of the agricultural workers. In these classes the number of married males has been considerably reduced in the period 1870-1900, while the number of unmarried persons has appreciably increased in the same period. In the class of independent farmers, the number of whom has much increased, the number of unproductive members of the family, which means chiefly children under fifteen, has been considerably reduced, as is the case with the general agricultural population. Unproductive dependents in the total agricultural population were:

Year.	*Male.*	*Female.*
1870	549,803	563,357
1900	474,749	498,761

The relative reduction of the class of family-forming agricultural workers and the general change in the size of agricultural families are in the case of Sweden the causes of the reduction of the agricultural population. However, the independent farmers and unmarried workers have increased in number in the period 1870-1900.*

In the case of England the table on p. 542 shows the number of persons employed in the chief branches of industry in the various census-years (in thousands).

We see here how enormously the number of persons employed in agriculture was reduced in the second half of the nineteenth century. The table also shows which industries received the largest accessions from without during the same period. They are the capital-producing industries—namely, the building, iron and steel, and

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* Wohlin, *Den Jordbruksidkande Befolkningen i Sverige* 1751–1900: "Emigrationsutredningen," Bilaga X. (Stockholm, 1909).

	1851	1861	1871	1881	1891	1901
Agriculture	1,905	1,803	1,424	1,200	1,100	988
Building trades ..	399	472	583	687	701	946
Mining	193	271	315	38[illegible]	519	649
Cotton industry ..	415	492	509	552	606	582
Woollen industry ..	256	230	247	240	258	236
Silk industry ..	131	116	83	65	52	39
Iron and steel industry	95	130	191	201	202	216
Engineering and ship-building	81	124	173	217	292	—
Tailoring	139	143	150	161	209	259
Shoe-making ..	244	256	225	224	249	251
Printing and book-binding	33	47	64	88	122	150
Furniture-making ..	48	64	75	84	101	122*

engineering and ship-building trades, as well as the printing, book-binding, and furniture industries.

When we further inquire how the composition of the various groups employed in agriculture changed, we find that the number of females fell much more than the number of males, and that the number of persons under twenty was reduced a little more rapidly than the total number. The number of females employed in agriculture in 1851 was 436,174, and by 1891 it had fallen to 46,001. In the same period the number of males fell from 1,468,513 to 1,053,571. This carried the disproportion of the sexes too far. By 1901 the number of females had risen to 52,459, and the number of males had sunk to 935,881.

A study of the migration from agriculture up to the present shows, therefore, that the movement cannot go on indefinitely, but must in the most advanced countries nearly have reached its limit. There are two things to be noticed: on the one hand, if agriculture is not to go backward, it can scarcely spare any more labour; on the other hand, the size of families in the agricultural population has already gone down so much that the natural increase of this population cannot be maintained at the height it has hitherto had. In drawing labour from agriculture, industry clearly relies upon the growth of the agricultural population as it was fifteen to twenty years ago. In another fifteen or twenty years industry will come to feel the consequences of the present reduction in the size of the agricultural family in the shape of a reduced accession of workers.

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* Board of Trade, *British and Foreign Trade and Industry* (1903, Cd. 1761, p. 362).

The question how far we should expect these results to be modified by a progressive division of the ownership of land and considerable development of small farming must be left open for the present. The temporary nature of the migration from agriculture in the nineteenth century, which we have pointed out, is instructive enough when we consider this migration as a link in the great process of change which has brought us to the system based upon division of labour and modern industrialism. Part of this development is, as everyone knows, a very wide emigration from Europe to colonial countries, and this makes it difficult for us to grasp the essential features of the development. We simplify our task, and get a general view, by regarding the old Europe and the new colonies as a whole and asking what influence the transition to industrialism has had upon the agricultural population of the whole region.

We then notice that the transformation of the productive process which has taken place in our time contains two elements of importance to agriculture. In the first place, a good deal of the home-production of the old family-economy has been cut off and transferred to the modern industrial system. The occupations that have thus been transferred are partly such as we do not now regard as agricultural and partly such as are more directly connected with agriculture. To the first group belong spinning and weaving, the making of garments and boots, and a whole list of small domestic activities. In the second group we have butter-making, cheese-making, slaughtering, and so on. In this way the old type of domestic production has been gradually reduced to agriculture alone, and it is thus converted into a sort of trade. And in proportion as industry took over these occupations from the domestic sphere, it deprived the older family of its now superfluous labour and applied it to industrial purposes. It is obvious that this development represents a change that must be completed within a certain period of time. Agriculture, as we have it to-day, has approached the limit of its capacity to furnish workers to industry.

The second element in the revolution of the productive process is the technical advance of agriculture. This development consists partly in the improvement of agricultural methods—the progress of agricultural chemistry, economic botany and zoology, etc.—and partly in the introduction of machinery. Both these advances give industry something new to do, and at the same time the latter at least lessens the need of labour on the land. As long as technical advances of this sort take place, we can imagine a further transfer, within certain narrow limits, of workers from agriculture to industry. But we must bear in mind that advances which dispense with labour are also being made in industry; and that in the long run they cannot predominate in agriculture. Sooner or later we must reach a state of equilibrium between agriculture and industry, and, if the population still continues to grow, it must be, on the whole, fairly equally distributed between agriculture and industry.

Let us resume the matter. The causes of the migration from agriculture to industry are for the most part due to a revolution in our whole economic organisation. This revolution occupies, on the whole, the last hundred years, and has already reached its final stage. We must, therefore, expect that in the immediate future the stream of labour from agriculture will materially diminish.

The last century was also the period of the origin of modern industry on a large scale: the period, especially, when the capital-producing industries made extraordinarily rapid progress. This progress was, as we know, unequal; it was an advance by leaps, and was concentrated in the high conjunctures. It was made possible by the extraordinary addition of labour that could on each occasion be derived from agriculture. If it is clear that the capacity of agriculture to provide labour is now materially curtailed at the close of the industrial revolution, we reach the important conclusion that the *conjuncture-movements are, to a very great extent, a phenomenon of the period of transition from the old economic forms to the modern.* If outside labour can no longer be attracted, or only to a slight extent, high conjunctures cannot occur again with their earlier intensity. While, however, the conjuncture-curve can no longer be driven up to such sharp points, it will, obviously, not be exposed to such violent reactions, but must run more steadily than has hitherto been the case.

We get some idea of the changes which take place in this sphere when we consider the actual features of conjunctures in different countries. They are most acute in the United States, where the high conjuncture may rely upon an almost unlimited new supply of labour. The source of this labour in the United States is immigration. It is instructive in this respect to study the relations between immigration and the production of fixed capital, as represented by the output of pig-iron. We find that the maxima of immigration coincide with the maxima of production of pig-iron, but that the minima of immigration generally occur at the close of the periods of depression. The table on p. 546 brings out this fact very clearly.

The retarding of the minima of immigration is due to the fact that an accession to the number of workers cannot be absorbed by the capital-producing industries until the depression is over: that is to say, until the industries in question have again taken up the maximum number of workers which they employed during the last high conjuncture. It is obvious that such enormous and sudden enlargements of fixed capital as those which occur in the United States are only possible in a country where the capital-producing industries can attract outside labour

Year.	*Immigration (in Thousands).*	*Pig-Iron Production (in 100,000 Tons).*
1891	560	83
1892	623 max.	92 max.
1893	503	71
1894	314	67 min.
1895	280	94
1896	343	86
1897	231	97
1898	229 min.	118
1899	312	136
1900	449	138
1901	488	159
1902	649	178
1903	857 max.	180 max.
1904	813 min.	165 min.
1905	1026	230
1906	1101	253
1907	1285 max.	258 max.
1908	783	159 min.
1909	752 min.	258
1910	1042	272[*]

to any extent. In Europe, where this capacity is much more restricted, we can hardly imagine such a high conjuncture as that which the United States experienced in the years 1905 to 1907. And as in Europe the accession of outside labour to the capital-producing industries is now more restricted than ever, we must expect a considerable restriction of the high conjunctures. This must lead to a corresponding mitigation of the depressions. While the enormous fall in the pig-iron output in the United States in the year 1908 (from 25,800,000 to 15,900,000 tons) and the corresponding reaction in the total production of fixed capital have no counterpart in Europe, we may look forward to a time when European depressions will be even less pronounced than they now are.

[*] *Statistical Abstract of the United States.* The figures of pig-iron production relate to the calendar years, and the figures of immigration to fiscal years (to June 30th of each year given).

It goes without saying that the development which we describe as probable may proceed otherwise if the great capital-producing industries of the Western world are in the future manned to a greater extent by workers of foreign races.

§ 66. UNEMPLOYMENT.

In the two preceding sections we have obtained some idea of the way in which the accession of workers to the two chief branches of industry is influenced by conjunctures. For this purpose it was necessary to use statistical data which, at least approximately, gave us the total number of workers in the various trades. It is only from such statistics that we can compare the numbers of workers in any particular trade from year to year.

We found that the capital-producing industries, which attract a good deal of outside labour during high conjunctures, reject it again during depressions, and so cause unemployment. It is not necessary that these expelled workers become entirely without occupation, as it is conceivable that to some extent they will go back to agriculture from which they came, and resume their activities there for a time. In Sweden this is a fairly common practice. The capital-producing industries may, to a great extent, take agricultural workers or members of peasant-families direct from their occupation on the land. This applies particularly to the timber-industry, but also, in large measure, to the building trade. When these workers can find no further employment in industry, they often go back to their former places.

It is obvious that these things cannot be done, or not done to the same extent, in countries with very advanced industries. Here the workers rejected in periods of depression are generally exposed to real unemployment. The fall in the number of workers employed in the industries in question, which we have shown in the case of Germany, should give us a generally accurate idea of the extent of " conjuncture-unemployment."

But of temporary fluctuations of the degree of employment the statistics we have hitherto used give us no idea. If we want to study the problem of unemployment from this point of view, so as to have a sort of barometer to indicate the development of conjunctures, we must proceed differently. We must primarily look to the unemployed statistics of Trade Unions which give regular returns of their unemployed members. The greatest defect of these statistics is that they usually include only a relatively small part of the total number of workers.

First let us consider the results that have been obtained in England. The report of the *Labour Gazette* in 1893 covered Unions with 336,000 members, and in 1903 this number had risen to 560,000. The statistics distinguish various main groups of industries, and the engineering, ship-building, and metal industries are specially treated. Figures of unemployment are also given for the building trade. We are thus able to see what proportion the unemployment reported by the Unions in the capital-producing industries bears to unemployment in the other industries.

	A.	*B.*	*C.*	*D.*	*E.*
1872 min.	0·9	1·2	2·4	1·5	0·0
1879 max.	15·3	8·2	8·3	4·0	3·3
1882 min.	2·3	3·5	2·5	2·4	0·9
1886 max.	13·5	8·2	4·7	2·6	5·2
1890 min.	2·2	2·2	2·5	2·2	1·6
1893 max.	11·4	3·1	4·1	4·1	2·6
1899 min.	2·4	1·2	2·1	3·9	1·2
1904 max.	8·4	7·3	6·8	4·7	3·0
1906 min.	4·1	6·9	4·8	4·5	1·9
1908 max.	12·5	11·6	8·3	5·5	2·9

In this table, based upon the statistics of the Board of Trade,* unemployment in the Unions, in percentage of the total membership, is divided into the following groups:

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* *Fourteenth Abstract of Labour Statistics of the United Kingdom* (1908–1909).

A. Engineering, ship-building, and metal industries.
B. Building industry.
C. Wood and furniture industries.
D. Printing and book-binding.
E. Mining, textile, clothing, paper, leather, glass, pottery, and tobacco industries.

The figures are only reproduced for the years in which the average percentage for the whole of the Unions is either a maximum or a minimum. We see that in the minimum years unemployment is usually very small for all the groups. But in the maximum years it is quite clear how much more depressions affect the capital-producing industries (A and B) than the others. During the heavy depression of 1879, for instance, when unemployment reached 15·3 per cent. in group A and 8·2 in the building trade, it was confined in group E to 3·3. It was the same in 1908, when unemployment in groups A and B was 12·5 and 11·6 per cent. respectively, and only 2·9 in group E. These figures are obviously a strong confirmation of the results to which our previous studies led us—that conjuncture-movements are of their very nature fluctuations in the production of fixed capital and have only a secondary influence upon the other branches of production. It is part of the nature of these statistics that they bring out this difference of character of the two principal groups of industries only in periods of depression, for during high conjunctures unemployment proper falls practically to zero in all industries, and the statistics do not show the great rise in the number of employed workers which the capital-producing industries in particular show during high conjunctures.

The British Board of Trade also publishes monthly statistics of unemployment in certain Unions which give unemployment-relief to their members (table below). These statistics have a significance as a symptom of conjunctures, and serve as a kind of barometer of crises. For instance, the figures of unemployment in the second half of 1907 are higher than the corresponding figures of the previous year, and this must be taken as a sign of the coming turn of the conjuncture, although this turn is not fully seen in the figures of unemployment until the beginning of 1908. On the other hand, a fall in the percentage of unemployment indicates an improvement of the conjuncture. From August 1909 there was such a fall, and in point of fact an advancing period followed it. Unemployment naturally varies with the season, the highest figures being usually at the end of the year. As a rule, the December figures are higher than the average figures for the whole year. When there is an exception to this rule, as there is in 1905 and 1909, this seems to be a very reliable sign of a rising conjuncture:

Monthly Returns of Unemployment of the British Board of Trade, 1901–1911.*

Year.	*January.*	*February.*	*March.*	*April.*	*May.*	*June.*	*July.*	*August.*	*September.*	*October.*	*November.*	*December.*	*Average of Year.*
1901	3·5	3·4	3·1	3·4	3·0	3·0	2·9	3·4	3·2	3·2	3·3	4·2	3·3
1902	4·0	3·9	3·2	3·4	3·5	3·7	3·5	4·0	4·5	4·5	4·4	5·0	4·0
1903	4·9	4·3	3·9	3·6	3·5	3·9	4·4	5·0	5·2	5·6	5·5	6·3	4·7
1904	6·1	5·6	5·5	5·5	5·8	5·5	5·6	5·9	6·3	6·3	6·5	7·1	6·0
1905	6·3	5·7	5·2	5·2	4·7	4·8	4·7	4·9	4·8	4·6	4·3	4·5	5·0
1906	4·3	4·1	3·4	3·2	3·1	3·2	3·1	3·3	3·3	3·9	4·0	4·4	3·6
1907	3·9	3·5	3·2	2·8	3·0	3·1	3·2	3·6	4·1	4·2	4·5	5·6	3·7
1908	5·8	6·0	6·4	7·1	7·4	7·9	7·9	8·5	9·3	9·5	8·7	9·1	7·8
1909	8·7	8·4	8·2	8·2	7·9	7·9	7·9	7·7	7·4	7·1	6·5	6·6	7·7
1910	6·8	5·7	5·2	4·4	4·2	3·7	3·8	4·0	4·3	4·4	4·6	5·0	4·7
1911	3·9	3·3	3·0	2·8	2·5	3·0	2·9	3·3	2·9	2·8	2·6	3·1	3·0

For Germany the *Reichs-Arbeitsblatt* has published continuous statistics of unemployment in the German Unions since 1903. The number of unemployed (at home or travelling) in proportion to the number of members of the Unions reported upon is given for the close of the last week of each month. We reproduce here the figures for March, June, September, and December from the first year of the statistics:

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* 14th "Abstract of Labour Statistics," p. 7 (*Labour Gazette*, 1911–12).

Year.	*March.*	*June.*	*September.*	*December.*
1903	—	3·2	2·3	2·6
1904	2·0	2·1	1·8	2·4
1905	1·6	1·5	1·4	1·8
1906	1·1	1·2	1·0	1·6
1907	1·3	1·4	1·4	2·7
1908	2·5	2·9	2·7	4·4
1909	3·5	2·8	2·1	2·6
1910	1·8	2·0	1·8	2·1
1911	1·9	1·6	1·7	2·4
1912	1·6	1·7	1·5	2·8[*]

The lower figures for 1905, 1906, and 1907 clearly reflect a high conjuncture and the subsequent depression is seen just as clearly in the high figures of 1908 and 1909. But we must ascribe only a general symptomatic significance to these figures. Comparison of the various years, and especially of the various trades, is very difficult owing to the nature of the material. The number of the workers taken into account has been quadrupled since 1904, rising from about half a million to about two millions. The various trades are very unequally represented, and the returns are very defective in the case of some important industries such as mining and building.

In order to take account also of the length of unemployment the *Reichs-Arbeitsblatt* calculates for each quarter the proportion of the total number of unemployed to the total number of "member-days": that is to say, the number of members and that of the working days in the quarter (possible working days). Of each 100 member-days the following were days of unemployment:[†]

Year.	*First Quarter.*	*Second Quarter.*	*Third Quarter.*	*Fourth Quarter.*
1909	3·2	1·9	1·6	1·4
1910	1·7	1·4	1·2	1·2
1911	1·8	1·0	1·1	1·1
1912	1·8	1·1	1·1	1·4
1913	2·1	1·8	2·1	2·5

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[*] *Reichs-Arbeitsblatt*, X. Jahrgang, Nr. 4, p. 264.

[†] *Reichs-Arbeitsblatt.*

The figures show that the period of depression was over in 1910, and the end of the subsequent high conjuncture is clearly indicated by an increase of unemployment in the fourth quarter of 1912.

In order to illustrate the extent of employment of German workers the *Reichs-Arbeitsblatt* also publishes statistics of the fluctuations of the number of employed members under the insurance scheme (sick-insurance) subtracting the increase of the number which is due to the growth of the population. These statistics can, of course, only be used as a barometer for the labour market. As such, however, they can claim a certain value, as the returns include about 5,700,000 members (March 1912).

The work of the labour bureaux is also given in order to illustrate the state of the labour market. But the number of those seeking employment as compared with the number of situations vacant is much too complicated an idea to help the theoretical interpretation of the fluctuations of the labour market.

§ 67. Changes in Working-Time.

In the preceding sections we have considered those fluctuations in the number of employed workers which correspond to the fluctuations in production caused by conjunctures. We found that the capital-producing industries during the high conjuncture re-absorb the workers put out of employment during a depression, and also attract outside labour, which they will partly expel again in the next depression. But there is another way of adjusting labour to the needs of varying productive activity—by increasing or curtailing the hours of work daily or the number of days worked in the week.

This method is used in the English coal mines, and the working of it can be followed statistically. The annual average of the number of work-days in the week is given in the following table:*

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* Board of Trade, Memoranda, etc., Cd. 2337, 1904, pp. 80 and 94 ("Fourteenth Abstract of Labour Statistics").

1895	4·74	1903	5·09
1896	4·92	1904	5·07
1897	5·13	1905	5·03
1898	5·25	1906	5·26
1899	5·46	1907	5·51
1900	5·47	1908	5·22
1901	5·12	1909	5·14
1902	5·22	1910	5·19

We see that the time worked per week rises from the minimum in 1895 to the maximum in 1900, then fall to a minimum in 1905 and rise again to a maximum in 1907. The differences between the maxima and the minima are, as one sees, fairly large.

The time worked in 1907 was larger for each month than in the corresponding month of the previous year. The fall does not begin until the commencement of 1908, and it is not until the last quarter of 1908 that the time is less than in 1906.

This method of adjusting the requirements of labour is also used in the iron mines. The average number of working days in the week in the iron mines was as follows from 1896 to 1910:*

1896	5·72	1904	5·79
1897	5·76	1905	5·77
1898	5·75	1906	5·78
1899	4·76	1907	5·81
1900	5·65	1908	5·69
1901	5·58	1909	5·76
1902	5·74	1910	5·77
1903	5·72		

Here the fluctuations are smaller as we should expect, but they bring out clearly the advance from 1901 to 1907 and the subsequent reaction in 1908.

In the iron and steel works the number of shifts of work is adapted to the varying requirements. The average number of shifts worked by one man in a week in the following years was :†

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* From the sources quoted.

† "Fourteenth Abstract of Labour Statistics."

1901	5·32	1906	5·57
1902	5·36	1907	5·58
1903	5·39	1908	5·36
1904	5·40	1909	5·38
1905	5·51	1910	5·50

Here again the high conjuncture of 1907 is conspicuous.

When we multiply the average shifts worked by the number of men employed, we get a correct measure of the extent of employment in the iron and steel works. The percentage of increase and decrease of this extent of employment for each month in comparison with the corresponding month of the previous year is regularly published in the *Labour Gazette*. For the years 1906-1909 these percentages were:*

Month.	1906	1907	1908	1909
January	+13·3	+2·9	- 6·6	-5·8
February	+10·1	+3·4	- 8·3	-7·8
March	+10·7	+3·1	-10·0	-4·1
April	+ 8·4	+5·5	-12·8	-4·1
May	+ 7·0	+5·4	-13·9	-0·4
June	+ 8·5	+5·2	-14·7	+1·4
July	+ 5·7	+4·1	-14·0	+0·9
August	+ 5·4	+4·4	-13·3	+3·2
September	+ 4·2	+2·5	-12·3	+3·7
October	+ 4·6	-1·9	-11·2	+6·3
November	+ 3·1	-4·9	- 9·0	+6·5
December	+ 3·1	-4·0	-11·4	+9·6

These figures are well calculated to inform us accurately as to the time of the beginning and end of the depression. We find that it is not until October 1907 that there is a diminution of the great extent of employment of the high conjuncture in comparison with the corresponding month of the previous year. It is not until November that the reaction exceeds the advance of the previous year, and not until May 1908 is the whole increase of the two years of high conjuncture cleared off. Thus the iron and steel industries were very busy up to the last moment of the high conjuncture; which agrees with the result we reached above (§ 63, at the end) in our inquiry as to the time of the commencement of the decrease in the production of the materials of fixed capital.

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* From Pohle, *Monatliche Übersichten*.

CHAPTER XVI

THE INFLUENCE OF CONJUNCTURES ON THE PERMANENT MATERIAL MEANS OF PRODUCTION

§ 68. CHANGES IN THE AMOUNT AND EFFICIENCY OF THE MEANS OF PRODUCTION.

THE fluctuations of production which make their appearance in the various stages of a conjuncture involve differences in the use, not only of labour, but also of the material means of production. The increased production during a high conjuncture is not conceivable without an increased use of the material means of production. The demand for these during a high conjuncture may be met in two ways:

1. By making new means of production, thus increasing the total supply or at least increasing its efficiency.
2. By making better use of the existing means. Let us first consider the former alternative.

Those means of production which we have put under the heading " circulating capital " need not be taken into consideration here. An increase in the production of circulating capital is, as we are aware, to be regarded as an accompaniment of every enlargement of the productive processes of the social economy. We may, therefore, confine our attention at first to the multiplication of permanent material means of production, or of fixed capital, which is involved in the increased production of the high conjuncture.

What is the source of this increase of permanent means of production which the high conjuncture necessitates? The production of fixed capital is continuous, as we saw; slower in periods of depression than in high conjunctures, but even then it goes on to a considerable extent. The fall in pig-iron production during depressions is only a few per cent.; it may in exceptional cases be much greater (in the United States in 1908 it was 38 per cent.),* but even during severe depressions the output is substantially maintained. And this applies to the whole production of fixed capital. The construction of railways goes on, as the statistics show, though unsteadily. The equipment of the railways to increase their efficiency also continues during periods of depression, as may best be seen in the United States, with its private railways and its very changing conjunctures.* The annual extension of the station-lines, which was 2,644 miles in 1892-3, fell to 1,240 miles during the depression of 1894-5. This is, of course, a considerable decrease; still, it is seen that the construction of stations went on to a great extent during the whole period of depression. In the high-conjuncture year 1903-4 the construction of station-lines reached the figure of 4,932 miles. This figure was reduced in the next year of the depression to 3,450 miles. The construction of second, third, and fourth lines also continued during the depression; in 1905-6, for instance, there was a minimum of 880 miles, but the next year reported a construction of 1,485 miles. There is, therefore, even in periods of depression work done continuously to increase the transport-capacity of the system. We find the same in regard to rolling stock. The number of goods-waggons (about 1,654,000) was increased by about 38,000 in 1903-4, and again by 39,000 in 1904-5. At the same time the average carrying capacity increased from 29 to 30 and 31 tons. This shows that there was a considerable elimination of old waggons, and the number of new trucks must have been much greater than the figures here quoted. The increase in the number of trucks in the period of depression is small in comparison with the enormous increase in the subsequent high conjuncture, when it reached 107,000 and 153,000 in the years 1905-6 and 1906-7; yet it shows that the period of depression contributed materially to improving the transport-capacity of the railways in this respect also.

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* *Statistical Abstract of the United States.*

What we have shown in figures as regards the railways applies to the entire sphere of economic production. At the close of the depression the national economy is much better provided with permanent material means of production than it was at the beginning, and it is therefore quite prepared for the next high conjuncture. This equipment of the national economy with permanent means of production facilitates the increased production in the high conjuncture, but it is far from sufficient to meet the extraordinary requirements of the high conjuncture. This must itself produce the far greater part of the means of production which it needs. Hence, as we saw, the production of fixed capital increases during a high conjuncture. It is this considerable increase in the production of means of production above the normal measure, continued throughout the whole of the high conjuncture, which creates the high conjuncture.

We have already seen, in a concrete example, that the period of depression weeds out antiquated means of production, replaces them by new and better, and so raises the average productivity. It is very interesting to study these changes in the production of pig-iron, as this is the chief foundation of the production of fixed capital.

It is a well-known fact that furnaces multiplied considerably during the last generation. This change was effected by the constant construction of new furnaces and abandonment of old. But the development was not steady. The removal of old furnaces clearly took place mainly during periods of depression. During high conjunctures it was frequently necessary to resume the use of furnaces that had been abandoned during the depression, although they were really antiquated.

The German statistics of the industry give not only the total production of pig-iron, but also the time, the number of weeks, the furnaces were at work. We can, therefore, calculate the average output of iron per working week. Multiplying this figure by 52, we get figures which may serve as a measure of the average productive capacity per year of the active furnaces, assuming that they are occupied throughout the year (Table IX.). This productivity of the German furnaces rises between 1872 and 1909 from 7,560 tons to 51,320 tons. The increase relaxes considerably, however, in periods of depression. For the whole period we may count nineteen bad and eighteen good years. In the bad years the rise of the figure of productivity averages about 1,555 tons, and in the good years it is only about 789 tons. This is due to the fact that the old furnaces are almost entirely thrown out of use or definitively abandoned in the periods of depression. The building of new furnaces seems to proceed with more regularity. The fact that during high conjunctures more or less antiquated furnaces are brought into requisition naturally brings down the increase of the average productivity which the new furnaces would give. In the boom year 1880, when the pig-iron output rose from 2,227,000 to 2,729,000 tons, the number of active furnaces rose from 210 to 246, yet the average productivity went back a little—namely, from 12,934 to 12,930 tons. Otherwise, there seems to be a constant tendency to an increase of productivity; but it is, as we said, much slower during high conjunctures than during periods of depression. In the sharp depression of 1900, when the iron-output fell from 8,520,000 to 7,880,000 tons in 1901, and rose again to 8,530,000 tons in 1902, the average productivity of the furnaces went up from 33,430 to 35,580 and 40,520 tons; which is clearly connected with the fact that the number of existing furnaces fell from a maximum of 309 in 1901 to 289 in 1902, and the number of furnaces in operation fell from a maximum of 274 in 1900 to 241 in 1902. In 1908 the number of existing furnaces was increased by seven in comparison with the preceding year, but the number of furnaces in operation was reduced by twenty-three; and the two changes together meant an increase of the average productivity from 45,298 to 48,733 tons.

We may take it as a rule that the elimination of old means of production takes place chiefly in periods of depression, while the production of new means of production is brisker during high conjunctures. The result of the development during the depression is always an increased productive capacity, on which the incipient high conjuncture can rely. It is also very probable that during depressions antiquated methods of production are abandoned. In part this is directly connected with the making of new means of production, but to some extent the improvement in methods of production has its centre of gravity in the sphere of organisation. The periods of relaxed pressure give the employers time for a comprehensive reorganisation of their businesses. In all probability this is commonly another way in which an increased productive capacity is reached until the beginning of the next high conjuncture.

The multiplication of permanent material means of production, which we can establish for periods of depression, represents an accumulation of capital during such periods. But this is not the accumulation of capital in "monetary form," or of "free capital" waiting for "investment," assumed by certain theorists and financial journals. During the depression, as at all other times (§ 47), the formation of capital is a real increase of "invested capital," and primarily of fixed real capital. This "accumulation of capital" is scarcely to be regarded as a condition of a high conjuncture and is at least very far from being a sufficient basis of the increased production. To a considerable extent this increase of production must, as we have seen, be based upon the means of production which the high conjuncture itself had created.

The accumulation of capital during a depression is also in part an accumulation of circulating real capital—an increase in stocks of commodities which did not find purchasers during the depression. These commodities may be materials for fixed capital or for products which pass into consumption, or consumable goods properly so called. It seems to be imagined sometimes that the high conjuncture is only made possible by this accumulation of commodities. According to this view, which has at all events the advantage of assuming a concrete foundation for the accumulation of capital, which some insist on regarding as a prerequisite condition of the high conjuncture, the extraordinarily increased production of fixed capital which characterises the conjuncture is in part directly facilitated by the stores of materials for such real capital, and in part by the fact that productive forces could, thanks to the stores of goods for consumption or materials therefor, be diverted from the immediate supply of goods to consumers and applied to the production of fixed capital. In this way of looking at the matter there is a trace of the old theory of Adam Smith, that " a stock of goods must be stored up somewhere " before capitalistic production can begin (*cf.* p. 32). We need only state here that the existence of stores of this description can have no material significance for the high conjuncture, since, as we know, the production of materials and consumable goods is, as a rule, increased above the normal in every branch during a high conjuncture, and therefore it itself, in the main, meets its demands for these articles. Whether the preceding depression has left stores of, let us say, pig-iron is more or less immaterial to the development of the high conjuncture, as the extra supply to meet the need that is taken from such stores is of no great consequence in comparison with the enormous production of the high conjuncture itself.

Although it would be difficult to draw up incontestable statistics of the stores accumulated during depressions we may safely say that the depression is not mainly to be conceived as an "over-production"—a production of goods which cannot be sold until later—but rather as an incomplete use of the existing means of production (§ 69). The stores left over here and there from the depression are not a general or necessary condition of the occurrence of a high conjuncture, and therefore not an essential element in the explanation of it.

§ 69. VARIATIONS IN THE USE OF MEANS OF PRODUCTION.

The other chief way to facilitate the increased production during a high conjuncture is to make a better use of the existing means of production.

This better use may, as far as concerns circulating capital, be attained by accelerating the whole process of production and thus increasing the " rapidity of circulation " of circulating capital; and this is clearly equivalent to reducing the stores of circulating capital relatively to the extent of production. During high conjunctures, when production is at its intensest, every intermediate product is, as a rule, passed on as speedily as possible to the next stage of production, and does not remain long in store. It may be very generally assumed that the high conjuncture is characterised by a better use of circulating capital in this sense. But it would certainly be an error to see in this an essential element of the explanation of the increased production of the high conjuncture.

That there is a better use of the permanent material means of production during a high conjuncture, and that this to some extent facilitates the increased production, cannot be doubted. In periods of depression the permanent means of production are badly used, and in part not used at all. These fluctuations in the use of them are partly connected with fluctuations in the employment of labour. When a factory works overtime or with extra shifts, there is clearly a better use of the machines and the whole equipment of the place. If new workers are taken on, new machines also will be required to some extent; but frequently certain machines will suffice for the larger number of workers. The increased production is in such cases partly facilitated by the more intensive use of the machinery. This is true also in many cases of the buildings and the general equipment of the works.

But, quite apart from fluctuations in the number of workers or working hours, there are considerable variations in the use of permanent means of production; as when a ship, for instance, makes one voyage with a full cargo and another with half a cargo.

In certain cases we are in a position to illustrate these changes in the use of permanent means of production by statistics, and so get an approximate idea of the extent of the variations and a more accurate determination of the time when they occur. Railway statistics are particularly suitable for this purpose. There are various data as to the use of the existing material on the German railways. Taking 1,000 kilometers of use to one locomotive, the average is:*

1888	22·4	1900	27·4
1889	23·4	1901	26·8
1890	24·4	1902	26·5
1891	24·6	1903	27·4
1892	23·4	1904	28·1
1893	23·3	1905	28·9
1894	23·4	1906	29·8
1895	23·9	1907	30·1
1896	24·9	1908	28·1
1897	25·6	1909	26·5
1898	26·7	1910	26·5
1899	27·0	1911	27·4

We see that the use of the locomotives improved, but that this improvement only takes place during high conjunctures, and gives way to a certain reaction during depressions. The pitch of use that was reached in 1891 was not maintained in the subsequent depression, and was not exceeded until 1896. Then there was a sharp rise until 1900, but this was interrupted in the subsequent depression, and only resumed in the new high conjuncture of 1907. The later depression again brought about a considerable relaxation in the degree of use.

It is the same in regard to the utilisation of waggons. Taking 1,000 kilometers to one waggon-axle:†

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* *Statistisches Jahrbuch für das Deutsche Reich.*

† Same authority.

1895	19·1	1903	20·1
1896	19·3	1904	20·6
1897	19·5	1905	21·4
1898	19·7	1906	22·0
1899	19·9	1907	22·2
1900	19·6	1908	20·7
1901	18·9	1909	20·5
1902	19·2	1910	21·1
		1911	21·7

The conjuncture-changes can very easily be traced in these two sets of figures.

The whole railway system is, of course, much better used during high conjunctures than at other times. This is clear in the statistics of ton-miles per mile of line which are published in the United States. The goods traffic on the Swedish State Railways in tons per day and kilometer of line shows the following development in the period 1870–1910, taking only the maxima and minima:*

1870	1·56	1894	2·98
1876	2·85	1900	4·99
1879	2·22	1901	4·85
1883	2·77	1907	6·68
1887	2·49	1909	6·13
1889	3·26	1910	7·28

In order to determine the point of time at which a change in the use of fixed capital occurs we may take the monthly revenues of the railway systems of the great industrial countries. In the case of Germany the income from goods traffic per kilometer of working line was (in marks) in the following months:†

1907		1907	
July	2,696	November	2,903
August	2,819	December	2,525
September	2,745	1908	
October	3,085	January	2,493
		February	2,526

In each of these months the working revenue was greater than in the corresponding month of the preceding year.

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[*] *Statens Järnvägstrafik*, 1910, pp. 187–8.

[†] These and the subsequent monthly figures are from Pohle, *Monatliche Übersichten.*

There is no reaction in this respect until March 1908. The revenue does not fall below the figures for 1906 until the fourth quarter of 1908.

For twenty of the leading British railways the working revenue from goods traffic shows an advance for each month of 1906 and 1907 upon the corresponding month of the previous year, and in December 1907 it is more than £120,000. There is no decrease until January 1908, and it is not considerable enough until February to wipe out the whole increase of the preceding year.

In all these cases the fall of revenue occurs only after the outbreak of a crisis. During the high conjuncture, until the crisis, the railways are very busy. In many cases their transport-capacity was unequal to the demand, as we may infer from the reports of scarcity of trucks which occur repeatedly in this high conjuncture, as they do always in such periods.

Even in the production of consumable goods we can sometimes give statistics of the changes in the utilisation of permanent means of production. In the English cotton industry, for instance, we can compare the consumption of raw cotton with the number of spindles at work in the industry in a year. The consumption of raw cotton shows the following fluctuations since 1880, giving only the pronounced maxima and minima:*

Year.	*Absolute Consumption (in Millions of Hundredweights).*	*To One Spindle (in Thousands of Hundredweights).*
1880	12·3	310
1883	13·4	319
1885	11·9	277
1891	14·9	332
1893	13·2	2[illegible]2
1899	15·7	347
1903	13·9	295
1907	17·6	338

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* Board of Trade. *British and Foreign Trade and Industry*, 1909, Cd. 4954, pp. 153 and 157. The proportional figures have been calculated.

We see that the maxima of the consumption of raw cotton almost coincide with the turning years, and that the maxima and minima of this consumption always correspond with, respectively, the highest and lowest utilisation of the spindles. The rise of the degree of utilisation during high conjunctures is fairly considerable, but it is far from sufficient to meet requirements; it has to be supplemented by additions to the number of spindles. For instance, the number of spindles increased from 47,000,000 in 1903 to 52,000,000 in 1907.

That there are considerable fluctuations in the use of the permanent means of production in the case of the pig-iron output we have already seen in dealing with the German furnaces. Many furnaces which were out of action during the depression were brought into use again during the high conjuncture. This is particularly clear in the United States. On December 31st, 1902, there were 307 furnaces active there; on the same date in 1903, after the outbreak of the crisis, only 182. The number of furnaces working at the end of 1906 was 340, and at the end of 1907 only 167.

This partial utilisation of the permanent material means of production, which we have been able to establish for periods of depression, is, in fact, the characteristic feature of a depression. It may be generally defined as a period of relative unemployment of the permanent means of production. But, as we saw, the great general conjuncture-movements are essentially a variation in the production of fixed capital. Hence depressions must make themselves felt especially in a relative unemployment of those permanent means of production which serve for the production of fixed capital. The quantity of the permanent means of production of this kind is determined by the extreme demand during a high conjuncture. As the production of fixed capital relaxes after a crisis these means of production must be partly unemployed, precisely because they are permanent. It is just this that most clearly characterises the depression.

We can follow this phenomenon in the case of the production of pig-iron; which may serve as representative of the entire production of fixed capital. In our diagram (Fig. 13) we represent the world-production of pig-iron. At the time when the output is at its maximum, there must clearly be such a quantity of permanent means of production used in the iron output as will suffice for the maximum production. All these permanent instruments of production—furnaces, iron-mines, means of transport, etc., which are needed during the high conjuncture, are still there during the depression, and represent the

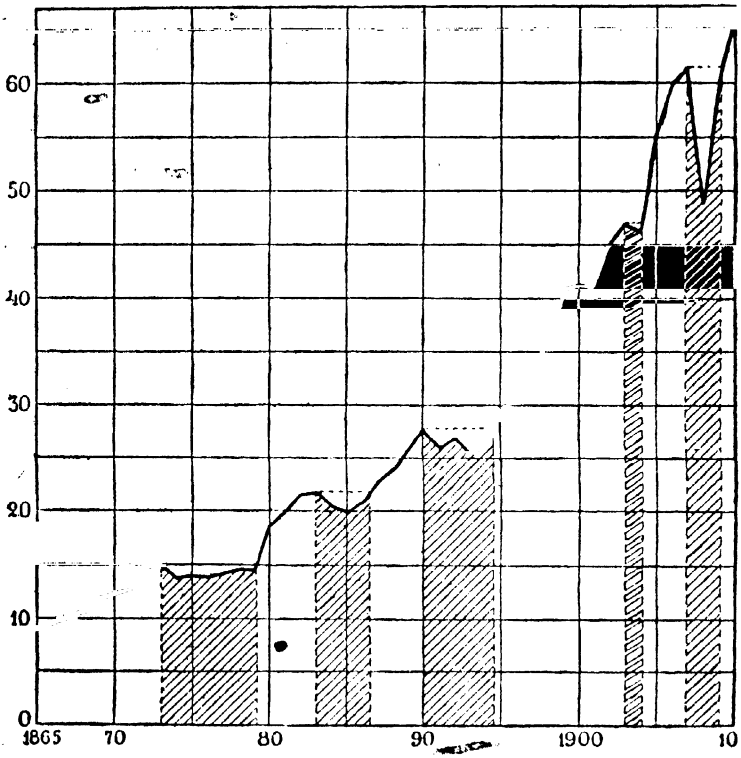

FIG. 13.—GRAPHIC REPRESENTATION OF THE PERIODS OF DEPRESSION. THE WORLD'S PIG-IRON OUTPUT IN MILLIONS OF TONS.

productive capacity of the community in this field. This productive capacity is represented on the diagram by the horizontal dotted line which starts from the sharp point of a high conjuncture. As long as the output remains below this productive capacity, there must evidently be a certain amount of idleness of the relevant means of production. This idleness lasts until the output again exceeds the productive capacity, or until our curve cuts across the dotted line. We can thus make a graph of periods of depression. They are represented on our diagram by shaded areas.

The diagram gives us a correct and concrete idea of the nature of depressions. *A depression is a period in which the demand for permanent material means of production is smaller than in the antecedent high conjuncture.* "Over-production" is not essential to a depression. It is enough that the actual production is less than is possible with the existing means of production. The idle part of the productive capacity is usually, as may be seen in the diagram, only a small percentage. But for the owners this idleness means a considerable loss, and it is increased by the fact that competition for the available employment forces down prices. The workers also are to a certain extent bound up permanently with production. For them also the depression means a comparative idleness, or unemployment and pressure on wages. Hence the slight fall of the curve of the iron-output is enough, as this output represents the total production of fixed capital, to cause severe disturbances of the whole social economy.

A glance at the diagram tells us that the periods of depression have a tendency to become shorter. This tendency must obviously continue as long as the curve of the iron-output shows the same upward movement as it has done since 1870. Naturally, we can say nothing about the shape of this curve in the future.

As the production of fixed capital goes on continuously, the community is, as we have already shown, better provided with permanent instruments of production at the close of the period of depression than at the beginning. The relative idleness of the means of production is, therefore, greater than it would seem to be on the lines of our diagram. But as soon as production again reaches the height it had in the antecedent high conjuncture, any depression is, as experience shows, at once ended, and the social economy enters upon a fresh high conjuncture. Hence our method of constructing the period of depression is satisfactory.

The results we have reached in this section bring out clearly the meaning of the permanence of the means of production throughout the conjuncture-changes. It is often asked: Why cannot we have a perfect adjustment of the productive forces to the demand? This question is sometimes made the starting-point of a criticism of the whole modern economic system. The fact is overlooked that the permanent instruments of production must be adapted to extreme demands, and precisely because they are permanent they must be in excess at every relaxation of the demand. The means of production could only be fully occupied if the demand for them never abated.

In regard to the effects of fluctuations of the demand we must distinguish between those permanent instruments of production which work directly for the consumer and those that are employed in producing further means of production. A relaxation of the demand of consumers means a corresponding degree of idleness for the first group of means of production, but possibly complete idleness for the means of production of the second group, as there are already more than enough of the first group available.

To bring about a relative unemployment of the instruments of production of the second group it is even not necessary that there should be a decrease in the demand for consumable goods on the part of consumers. If we suppose that this demand continues unaltered for some time, the making of further means of production of the first group ceases, and those of the second group have nothing to do, except in so far as they are required for repairs or to replace used-up instruments of the first group. The demand on the part of consumers need not even become constant; if it increases only a little more slowly than is normal, it will be necessary to make means of production of the first group in smaller quantities than usual, and the means of the second group will be only partially employed.

From this it follows that the production of permanent instruments of production must be, on the whole, much more sensitive to fluctuations of the demands of consumers than is the production which works directly for the needs of consumers. In those circumstances it is natural that the production of fixed capital should show more pronounced fluctuations than the rest of production: a fact we have already ascertained in various ways.

How much the employment of means of production of the higher order can be influenced by the fluctuations of the demand of the eventual consumers is seen particularly when one considers those permanent means of production which serve a very special purpose. Take, for instance, the English shipyards. The vessels they produce are permanent means of production, the demand for which may be represented by the extent of the freightage. The fluctuations of this demand need not be great to cause enormous fluctuations in the degree of employment of the yards. On our diagram (Fig. 14) curve A represents the tonnage (in millions of tons) of ships entering English ports annually, and therefore gives us an idea of the development of freightage. Curve B shows (in tens of thousands of tons) the total tonnage of new ships built annually in the English yards.* As we see, curve A needs to drop only a very little, or even keep a horizontal direction for some time, to provoke a fearful reaction in the employment of the yards.

The freightage curve must be regarded as, on the whole, very even. It will be difficult to attain greater regularity in this and similar lines of development in any near future. Yet the slight deviations from the steady proportional rise are enough to cause grave disturbances in the shipbuilding industry. There seems, therefore, to be little prospect of attaining a perfectly regular activity, not exposed to any conjuncture-variations, in the sphere of the capital-producing industries.

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* For the figures of this diagram, which are given in Table X. in the Appendix, see Board of Trade *Statistical Tables and Charts*, Cd. 4954, 1909, pp. 97 and 104.

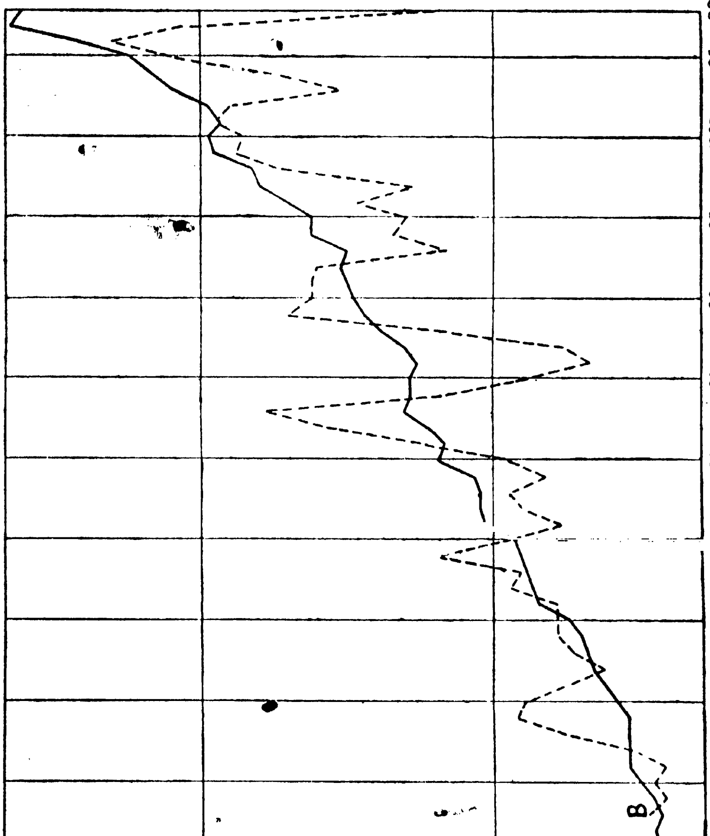

FIG. 14.—FREIGHTAGE IN MILLIONS OF TONS (A) AND SHIP-BUILDING IN 10,000 TONS (B) IN ENGLAND.

CHAPTER XVII

THE INFLUENCE OF CONJUNCTURES UPON THE FIXING OF PRICES, INCOME, AND CAPITAL

§ 70. The Prices of Commodities.

TURNING, now, from the concrete processes in the sphere of production to the process of exchange, we have first to consider the effect of conjunctures upon the fixing of prices. In this we must at first confine ourselves to materials and consumable goods, the prices of which are precisely the prices for the use of them. We cannot deal with the settlement of the prices of permanent goods which are fixed capital until a later stage, as this is, as we have seen, a complicated phenomenon, in which the price of capital-disposal, or the rate of interest, plays a part.

The commodities we have to study here fall into two main groups: materials of fixed capital and other commodities. Let us see how the prices of goods in these two groups are related to conjunctures. For three of the chief materials—pig-iron, bricks, and timber—the diagram (Fig. 15) shows the course of prices since 1871 according to the English statistics.*

The prices are calculated in percentages of the price in the year 1900. We see that the price-maxima stand out sharply, and that in general they coincide with turning years. In high conjunctures we regularly find a rise in the prices of the materials of fixed capital. This phenomenon is generally recognised, and can be observed in every country.

But it is not enough to know that the prices of the materials of fixed capital are influenced by conjuncture-movements. We must find out whether the prices of other commodities depend in the same way and to the same extent upon conjunctures. Unfortunately, special index figures for the materials of fixed capital and for other commodities have not yet been published; which is

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* The figures are reproduced in Table XI in the Appendix. Board of Trade, Cd. 4954, 1909, pp. 184 and 190

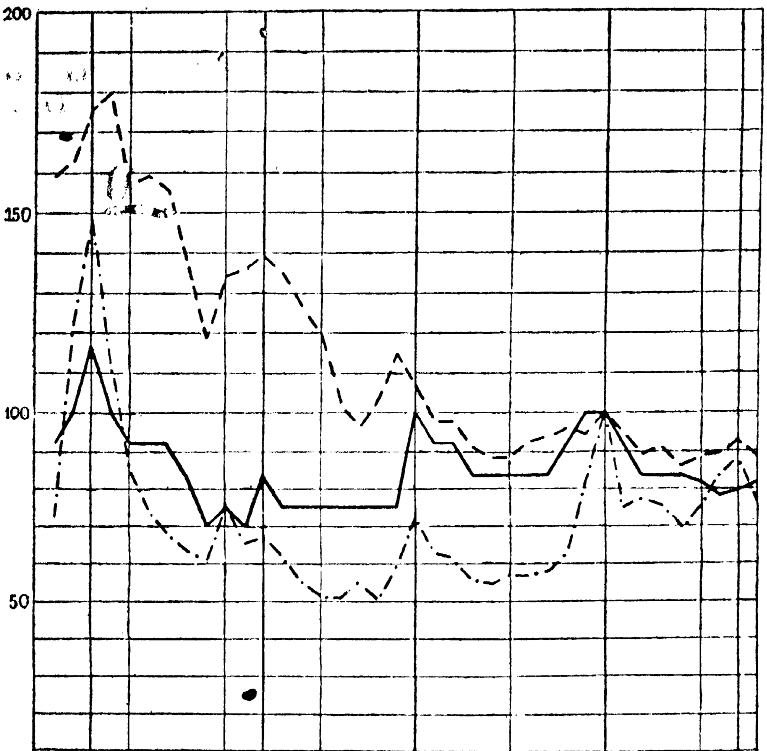

FIG. 15.—INDEX-CURVES OF THE PRICE OF PIG-IRON (— . — . —), BRICKS (———), AND TIMBER (— — —).

regrettable in view of the extreme importance of this distinction. However, to get at least an approximate answer to the question, we can break up the Sauerbeck index figures in such a way as to keep on one side the figures which Sauerbeck gives for his group " minerals," and on the other side the figures for the whole of the remainder of Sauerbeck's groups. In order to eliminate the disturbing influence of the fluctuations of the gold-output we will divide these index figures by our figures for the relative quantity of gold. The index figures for minerals and other commodities which we reach in this way are the basis of the accompanying diagram.* The

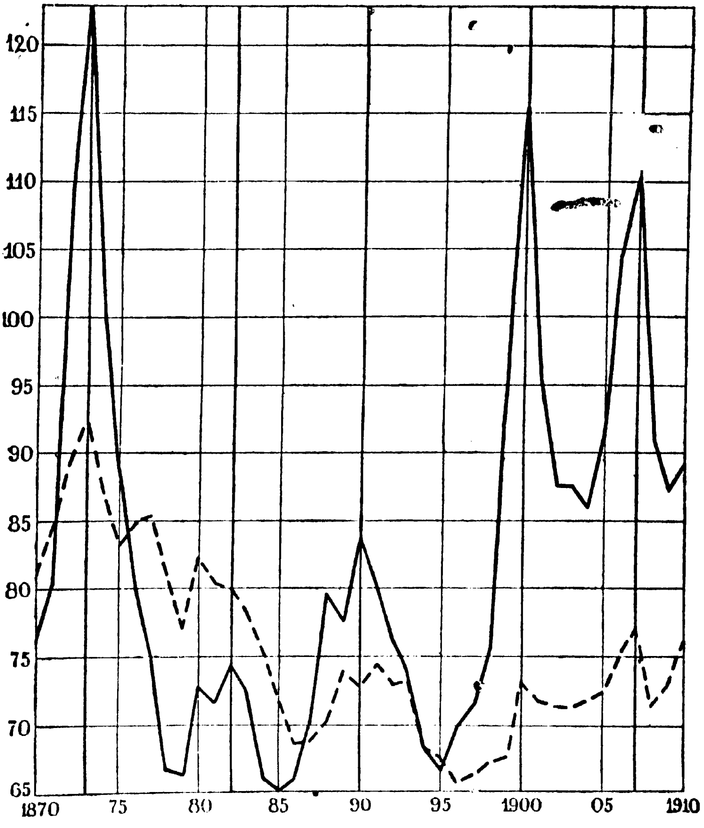

Fig. 16.—Sauerbeck Index Figures divided by the Relative Gold-Supply. ——— Minerals, — — — Other Commodities.

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* The figures are given in Table XII. in the Appendix.

continuous line indicates the fluctuations in the price of minerals; the dotted line the price of other commodities. A glance at the diagram shows how much more sharply the conjuncture-movements are reflected in the prices of minerals than in those of other things. The rise in the prices of minerals during high conjunctures is usually very acute, and it is followed after the crisis by just as pronounced a reaction. There is the same effect, though in an essentially less degree, for other commodities.

The fluctuations in the prices of commodities under the influence of conjunctures which we have shown in the case of the English free-trade market should be characteristic of the world-market as a whole. We should certainly find the same results if we were to make a similar analysis of the German index figures of prices.

We thus find that even in the sphere of the fixing of prices conjuncture-movements have a quite special connection with the production of fixed capital. This confirms the conclusion we reached in our studies of the influence of conjunctures upon production and labour. But we can draw several further important conclusions from the movement of prices during conjunctures.

In the first place we find that the high conjuncture causes a rise of prices not only in regard to the materials of fixed capital, but also in regard to other commodities. Thus there is no reduction in the prices of other things, as one might expect, to set off against the increased price of the materials of fixed capital. What we see is, not merely a relative change in the prices of different commodities, but a general advance of the level of prices. This is not due to the fact that the rise in the prices of the materials of fixed capital outweighs a contrary movement in the prices of other things; in fact, the group of " other commodities " shares, though to a much slighter extent, in the general advance of prices. This general advance cannot be attributed to changes in the gold-supply, since it is still plain in our diagram, in which we have eliminated the influence upon prices of changes in the gold-supply. We must, therefore, conclude that conjunctures have a special influence even in the purely monetary sphere.

We have already (§ 55) established this influence. During a high conjuncture there is a rise, not only of the prices of commodities, but also in the extent of the real exchange, and so a considerable rise of the entire volume of payments. This increased volume of payments is brought about partly by an acceleration of the circulation of the existing currency, and partly by an increase of the bank media of payment. The increase of the rapidity of circulation of the means of payment is clearly a direct effect of the general increase of the vitality of trade which characterises a high conjuncture. On the other hand, the ampler provision of means of payment implies a certain co-operation on the part of the banks, and therefore depends to some extent on the conditions of this co-operation—namely, the rate-policy of the banks. Thus the high conjuncture means, not only a relative change in the prices of commodities based upon the condition of the commodity-market, but also a real advance of the general price-level, which can only be explained as the outcome of a relatively ample issue of means of payment by the banks.

Secondly, the extraordinary height to which the prices of the materials of fixed capital generally rise in high conjunctures is a proof of an intensive scarcity of these materials. Although they are produced in much larger quantities, the demand for them can only be satisfied if it is restricted by extremely high prices. Hence the greatly increased production of materials of fixed capital during a high conjuncture does not mean over-production. On the contrary, there is at such times a real, not speculative, demand for these materials of fixed capital, which proceeds from the very men who create the fixed capital itself. During a typical high conjuncture this demand is so much in excess of the supply that the market has to be adjusted by a rise of prices. We can learn this fact from the market-returns during any high conjuncture: scarcity of materials puts an impediment in the way of a further rise in the production of fixed capital.

Thirdly, during high conjunctures there must be a certain scarcity of those means of production which are used in manufacturing the materials of fixed capital. When the prices of these materials rise as much as they actually do, we may be sure that the producers will utilise the whole of their powers to make the most of the opportunity offered by the conjuncture. If, nevertheless, the market is insufficiently supplied for some time, the explanation is that the means of production are strained to the limit. This applies both to the workers and the permanent means of production. As regards the workers, we have already shown that during high conjunctures there is a scarcity of workers in the industries we are considering, and this can only partly be met by working overtime. That the permanent material means of production are utilised to the full we have shown particularly in the case of the transport system. But the sustained high prices of products in these industries is the best proof that their productive capacity is fully employed. Hence during a high conjuncture there are no more workers or permanent material means of production than are needed for the output of that quantity of materials of fixed capital for which there is an effective demand.

This is particularly true of the pig-iron output. With the existing furnaces, pits, means of transport, etc., more pig-iron cannot be produced during a high conjuncture than is actually produced. The sharp points of the curve on our diagram (Fig. 13) indicate the extreme production that is possible with the existing permanent material means of production. This productive capacity that is reached at the height of a conjuncture remains during the subsequent depression, and is the standard by which the actual production must be judged if we wish to have an idea of the curtailment of employment during the depression.

In order to determine more closely the times of the movements of prices during the period of a conjuncture we may make use of the monthly index figures of the prices of commodities in Germany.* For the group "Metals" the index figure rose from 132·83 in February 1906 to a maximum of 163·35 in January 1907, to fall again to a minimum of 119·31 in July 1908. This fall in prices did not proceed steadily. In the first of the three half-years, or until July 1907, the fall was only 8·26; in the second it was 29·88, and in the third 5·90. The main part of the fall in prices was, therefore, in the second half of 1907, and it was a little more severe in the fourth quarter of the year. The lowest figure for 1906, that quoted for February, was not further reduced until December 1907. Thus the reaction from the highest prices of the high conjuncture began some time before the crisis (October 1907), but the advance in prices of the high conjuncture proper was not neutralised until after the crisis, and the fall below the initial figures of 1906 only began in December 1907. In the same way the index figure reached a maximum in October 1912 of 166·27, whereas the high conjuncture of that time extended to the autumn of 1913, when the fall in prices also took place for the greater part (September 154·20 to December 137·05).

The total index figure rises from 109·33 in February 1906 to 122·40 in July 1907, then falls to 107·79 in December 1908. From that point it again rises to a maximum of 132·54 in May 1912. We see how much more the prices of metals are affected by the conjuncture-movements than the total index figures are.

The same may be said in regard to the United States. The monthly average price of Bessemer pig-iron at Pittsburg† rose from a minimum of 18·10 in May 1906 to a maximum of 24·27 in June 1907, and then fell to a minimum of 15·71 in October 1908. It is very remarkable that the acute crisis of the autumn of 1907 sent down the price of pig-iron to only 19·34 (December 1907); this price had not been reached at all in the first half of 1906, and was not exceeded until the high conjuncture of September 1906. The next high conjuncture raised the price again to a maximum of 18·15, which had been reached in December 1912.

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* Pohle, *Monatliche Übersichten*.

† Same authority.

We may, therefore, say, as a general result, that high, or at least good, prices for the materials of fixed capital are paid until the last moment of the high conjuncture, and sometimes a little longer. But the reaction in these prices usually takes place a considerable time before the crisis, and may be taken as a sure sign of the approaching end of the high conjuncture. These prices only reach their minimum in the course of the period of depression. After this minimum there is a more or less steady upward movement, and a new maximum is reached a few months before the next crisis.

§ 71. Wages.

The average shift-wage of a coal-hewer in the Dortmund district has varied as follows since 1872, taking only the maxima and minima:[*]

1872	4·50	1893	3·71
1873	5·00	1900	5·16
1879	2·55	1902	4·57
1883	3·15	1907	5·98
1886	2·92	1909	5·33
1891	4·08		

The dependence of this wage upon conjunctures is very pronounced. The highest wages are paid, as a rule, in turning years, though in some years, as in 1883 and 1891, there is a certain delay in this respect. In order to fix more closely the times of the changes in wages we may quote the following data as to the average shift-pay of the whole of the miners in the mining district of Dortmund (the figures indicating the number of *pfennige* above the sum of four marks):[†]

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[*] Pohle, *Bevölkerungsbewegung, Kapitalbildung, und periodische Wirtschaftskrisen* (1902), p. 70. The latest figures are from the *Reichsarbeitsblatt.*

[†] Pohle, *Monatliche Übersichten.*

Year.	*Quarter.*	*Pfennige.*	*Year.*	*Quarter.*	*Pfennige.*
1906:	1st	17	1909:	1st	56
	2nd	26		2nd	45
	3rd	43		3rd	48
	4th	59		4th	48
1907:	1st	70	1910:	1st	48
	2nd	81		2nd	51
	3rd	94		3rd	57
	4th	99		4th	61
1908:	1st	87	1911:	1st	64
	2nd	82		2nd	66
	3rd	82		3rd	72
	4th	76		4th	75

The highest figure, 4·99 marks, was reached in the fourth quarter of 1907, and there was no marked reaction until 1910.

Thus wages seem to have a certain capacity of resisting the effects of a declining conjuncture. Statistics of shift-pay, however, do not give us an accurate idea of the real wage of labour. We know that the number of shifts worked by a man changes a good deal during conjunctures, and we must, therefore, suppose that the real average wage of labour goes down during the decline of the conjuncture more rapidly than is suggested by the figures of time-pay.

For Belgium Mahaim has worked out index figures of wages by dividing the total amount of wages paid in a year by the number of workers.* For the Belgian miners he has established the following fluctuations, again giving only the maxima and minima:

1883 ..	.. 84	1893 ..	.. 74
1886 ..	.. 65	1900 ..	.. 118
1890 ..	.. 93		

The fluctuations of the yearly wage are seen very clearly in these figures, which apply to from 103,000 to 135,000 workers. For the 8,000 to 10,000 employees of the Cockerill works the wage varied as follows:

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* *Journal of the Royal Statistical Society*, 1904.

1883	86	1894	85
1885	74	1901	114
1890	93		

The British Board of Trade publishes index figures of the wage in some of the chief industries (coal, building, engineering, and textile industries). These index figures, which seem to be based mainly upon wage-rates recognised by the Unions, show the following maxima and minima since 1871:*

1874	91·36	1895	88·23
1879	81·10	1900	100·00
1882	84·41	1904	95·56
1886	81·12	1907	101·79
1891	91·13	1909	99·41

We see that the highest wages again occur in the turning years, though the year 1891 shows some delay, such as we noticed in the case of the German miners.

The Board of Trade also publishes continuous statistics of the increase of the total sum paid in weekly wages in various trades due to changes in wages. The following figures (in thousands of pounds) show the increase (+) or decrease (−):†

1894	− 45	1902	− 73
1895	− 28	1903	− 38
1896	+ 27	1904	− 39
1897	+ 32	1905	− 2
1898	+ 81	1906	+ 58
1899	+ 91	1907	+ 201
1900	+ 209	1908	− 59
1901	− 77	1909	− 69

From the very careful inquiries of Bowley and Wood as to English wages we borrow the following results. The average wage in the shipbuilding and engineering industries shows the following maxima and minima (index figures, the year 1900 being taken as 100) since 1850:*

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* Board of Trade, "British and Foreign Trade and Industry," Cd. 4954, 1909, p. 212 (*Fourteenth Abstract of Labour Statistics*).

† *Abstract of Labour Statistics.*

1850	68	1882	88
1854	76	1886	84
1860	73	1890	93
1866	79	1893	91
1867	77	1899	100
1877	88	1903	99
1879	83		

The index figures of the average wage in the cotton industry show the following fluctuations since 1863:†

1863	62	1884	85⅓
1868	74	1886	83⅓
1869	72⅔	1901	100⅔
1877	88	1903	99½
1879	78½	1906	107⅓

Wages in the cotton trade were unaffected by the depression after 1891, but wages in the shipbuilding and engineering industries suffered a certain reduction, though not very large.

We need not quote any further figures. In spite of all uncertainty—and even in the best statistics of wages this cannot be entirely avoided—the material we have given for the short space of a conjuncture-period must give us a good idea of the tendency of the level of wages. It may be regarded as settled that the high conjuncture always leads to a rise of wages, and that the depression is usually accompanied by a decline. These changes apply, not only to wages in the capital-producing industries, but also, though, perhaps, in a less degree, to wages in other industries, even, as the official English statistics show, to agricultural wages.

A comparison of various trades with respect to the dependence of wages upon conjunctures would be difficult, and would not yield results of any importance for our purpose. But the general result which we have reached is very important for a correct apprehension of the nature of conjunctures. Rising wages are paid only when an increasing scarcity of labour makes it necessary. We may, therefore, conclude from the statistics of wages that during a high conjuncture there is, habitually, an appreciable scarcity of labour. This is a valuable confirmation of the results to which we came in earlier sections with regard to supply and demand of labour.

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* *Journal of the Royal Statistical Society*, 1906, p. 185. The figures relate to the whole of the United Kingdom.

† *Journal of the Royal Statistical Society*, 1910, p. 599.

The advance of wages during a high conjuncture is, however, in itself a phenomenon of great practical import, with considerable influence on the whole complexion of the high conjuncture. This advance clearly means a generally increased purchasing power for the chief classes of articles of consumption on the part of the workers, and it is thus an important factor in shaping the production and pricing of these goods.

The question whether *real* wages do or do not rise during a high conjuncture has often been discussed. We cannot give a general answer, as the phenomenon depends upon which of the tendencies at work get the upper hand. With the aid of statistical figures we can give examples of every conceivable connection between advance and fall of wages on the one hand, and advance and fall of prices on the other. In the circumstances we may dispense with any closer study of the fluctuations of real wages.

§ 72. INCOME.

The study of the influence of conjunctures upon the national income is, naturally, a very important aspect of our subject from the practical standpoint, but it also affords an opportunity for observations of some theoretical importance. In order, however, to illumine the problem from every point of view, we must not be content with a survey of the fluctuations of the national income as a whole; the various main parts of this income must be considered separately.

The material we have to use in such an inquiry are the statistics of income tax as well as of wages. As the income of any year is in practice generally taxed only in the following year, we will, for the purpose in hand, take as the income of a year that which is given in the income-tax statistics of the following year. This procedure is not entirely beyond challenge, but it will, on the whole, give us the best idea of the facts.

In England, where the working class is not generally subject to income tax, the statistics inform us only about the income of the middle and upper classes. For the simultaneous fluctuations of the income of the workers we have to consult the statistics of wages. The gross amount of income subject to tax varied, from 1870 onwards, as follows:*

1870	482	1893	694 min.
1874	579 max.	1899	868
1875	570 min.	1900	902
1883	631 max.	1901	915
1884	629 min.	1902	938
1891	718 max.	1905	979

We see that the maxima of income coincide with the apices of the high conjunctures, though they are generally a little retarded. The decline during a depression is in every case very small, and amounts at the most to about 3 per cent. (1891–93). After the high conjuncture of 1900 there was no reaction, but merely a retardation of the upward movement.

The influence of conjunctures upon the group of incomes which the English Commissioners put under schedule D is more pronounced. The variations are as follows:†

1870	203	1893	341 min.
1874	272 max.	1899	466
1875	257	1900	488
1878	250 min.	1901	492
1883	293 max.	1902	502
1885	286 min.	1907	566 max.
1890	369 max.	1908	559
1891	367		

In the year 1891 a small new group of incomes was brought under schedule D, though this did not prevent the income given from falling. The real decline from 1890 to 1893 is, therefore, rather larger than is shown in the figures. We find that the decline in D incomes, reckoned in percentages, is much larger than that of the total income—in fact, many times larger. Schedule D does not mean a uniform group of incomes, but includes certain salaries and dividends, though business income should be the nucleus of it. In any case, one may conclude from the available material that the business income is much more deeply affected by conjunctures than other classes of income. When we consider the various types of business income that are separately mentioned in the statistics by far the largest fluctuations are found, characteristically enough, in incomes from iron-works, which have varied as follows (in thousands of pounds):*

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* Board of Trade, Cd. 4954, 1909, p. 136.

† From the same source. The figures for 1907 and 1908 are taken from the *Statistical Abstract*.

1890	2,979	1904	2,684
1892	1,832	1907	5,101
1900	6,600	1909	3,233

For Prussia the table on p. 586, based upon the statistics of income tax, shows both incomes from 900 to 3,000 marks and incomes of more than 3,000 marks, classified according to the sources of income (figures in millions of marks).

The income from business, given under "Commerce, Trade, and Mines" declined from 1891 to 1893, as we see, and only rose above its former height in 1895. It then increased rapidly during the high conjuncture of 1900, sank considerably for three years in the subsequent depression, advanced again rapidly during the high conjuncture of 1907, and went back a little once more in the year 1908. The advance in the years 1896–9 amounted regularly to about a hundred million marks, or from 8 to 10 per cent., but there was a decline in 1900. In 1905 and 1906 again there was an appreciable increase of business income, but it was much reduced in 1907. Thus the maxima of the business income occur in the turning years, though the largest rise is in the earlier years of the

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* *Statistical Abstract.*

INCOMES BROUGHT UNDER NOTICE FOR INCOME TAX IN PRUSSIA
(IN MILLIONS OF MARKS)

Year.	*Income from 900 to 3,000 Marks.*	*Incomes over 3,000 Marks.*			
		From Investments.	*From Land.*	*From Commerce, Trade, and Mines.*	*From Occupation.*
1891	2,912	892	755	982	594
1892	2,969	887	746	960	615
1893	3,027	888	742	954	633
1894	3,134	904	739	963	660
1895	3,197	912	855	1,019	685
1896	3,318	943	785	1,106	729
1897	3,472	996	816	1,206	818
1898	3,685	1,081	867	1,304	892
1899	4,011	1,141	921	1,418	964
1900	4,328	1,208	968	1,497	1,037
1901	4,460	1,237	996	1,475	1,084
1902	4,616	1,243	1,007	1,424	1,132
1903	4,895	1,300	1,049	1,439	1,189
1904	5,209	1,380	1,109	1,507	1,261
1905	5,551	1,473	1,171	1,623	1,354
1906	6,592	1,610	1,185	1,744	1,500
1907	7,344	1,702	1,233	1,833	1,622
1908	7,642	1,731	1,269	1,809	1,732
1909	7,676	1,797	1,348	1,859	2,052
1910	8,078	1,915	1,426	1,946	2,205

high conjuncture. The other classes of income show no decline in the depressions after 1907 and 1910. In the depression after 1891 income from capital suffered a slight reaction, and income from land a rather greater reduction, though this was due to the particularly bad state of agriculture at the time. Hence the influence of conjunctures is by a long way greatest in the case of business income. In the other classes of income the depressions appear only in a modification of the upward movement.

The income-tax statistics of Saxony, which have the great advantage of including incomes down to 400 marks, show the following development in the various classes of income:*

Results of the Assessments for Income Tax in Saxony (in Millions of Marks).

Year.	*Landed Property.*	*Rents.*	*Salaries and Wages.*	*Commerce and Business.*	*Total Income.*
1877	214	109	334	357	1,014
1878	218	112	365	350	1,045
1879	222	116	380	353	1,071
1880	225	123	403	360	1,111
1881	229	129	422	371	1,151
1882	233	135	450	378	1,196
1883	233	142	465	395	1,236
1884	237	151	492	408	1,288
1885	241	158	521	418	1,337
1886	242	162	552	430	1,387
1887	247	168	584	444	1,443
1888	255	178	619	468	1,519
1889	263	187	665	496	1,611
1890	271	200	701	517	1,689
1891	277	205	714	516	1,713
1892	283	214	738	521	1,756
1893	287	220	771	528	1,806
1894	289	229	800	541	1,860
1895	293	237	851	562	1,943
1896	300	250	913	596	2,059
1897	307	263	972	626	2,168
1898	318	276	1,041	653	2,288
1899	329	289	1,103	682	2,403
1900	337	291	1,144	693	2,465
1901	343	300	1,158	700	2,502
1902	349	304	1,182	712	2,548
1903	356	303	1,234	703	2,597
1904	365	307	1,283	720	2,675
1905	373	321	1,338	738	2,770
1906	380	333	1,416	775	2,904
1907	388	348	1,515	813	3,064
1908	401	364	1,577	846	3,188
1909	413	379	1,644	873	3,309

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* *Jahrbuch für das Königreich Sachsen.*

The total income in the kingdom of Saxony has not, as one sees, been subject to any reaction, but the income from business and trade was reduced in 1891 and 1903. There was a corresponding reduction in the other classes only as regards rent, in the year 1902, and it was slight. The income from landed property and from salaries and wages rose even during depressions, though more slowly. During the high conjuncture which culminated in 1900 the greatest rise of business-income was in 1896–9. The advance in the following years was comparatively slow, and it was entirely suspended in 1903.

The figures for Sweden are very characteristic. From the assessments for the old income tax, agriculture, landed and house property, and all incomes below 500 *kronor* (about £27 10s.), are omitted. Hence in the case of business-incomes, not including agricultural revenue, 5 per cent. of their capital value is taken off as profit on the land and buildings in which the business is conducted. Here the increase or decrease (–) of business, salary, and wage income is given (in millions of *kronor*) as compared with the previous year:

INCREASE AND DECREASE (–) OF INCOME ASSESSED FOR INCOME TAX IN SWEDEN.

Year.	*Service (Including Pensions).*	*Business and Professions.*	*Year.*	*Service (Including Pensions).*	*Business and Professions.*
1883	0·3	– 0·9	1897	20·4	41·0
1884	6·2	9·7	1898	26·7	27·9
1885	3·9	– 7·7	1899	21·5	32·0
1886	3·6	1·7	1900	29·7	15·9
1887	2·7	3·0	1901	15·1	–15·0
1888	2·8	23·1	1902	43·1	11·3
1889	5·7	24·4	1903	34·5	27·5
1890	7·7	– 1·0	1904	26·3	20·2
1891	7·0	– 0·8	1905	29·5	40·1
1892	13·3	– 7·8	1906	48·2	73·7
1893	7·3	8·8	1907	123·1	–31·7
1894	6·6	10·5	1908	56·8	–37·0
1895	10·4	20·1	1909	10·4	–22·1
1896	12·7	29·3			

The large increases in income from wages in 1902 and 1907 are partly due to the introduction and the extension of self-assessment. This is also true to some extent of the advance of business-income in 1902.

We thus find that, while business-income shows a reaction in every depression, wage-income has risen steadily. The chief increases in business-income always fall in the early years of a period of advance. In the high conjuncture proper the increase of business-income is already much less. In the turning years themselves there is a decrease, or at least a considerable reduction of the upward tendency. The increase of the income of labour is always much smaller in the period of the beginning of the advance than the increase in the income of the employers, and it reaches its highest point in the high conjuncture proper. In the turning years and the subsequent depressions the income of labour shows a steady rise. There are, therefore, differences between the income of the employers and the income of the workers, in favour of the former in the earlier years of the advance of trade and in favour of the latter during the actual high conjuncture and, perhaps, still more in depressions.

The comparatively steady rise of wages which we have been able to show, especially in the case of Saxony and Sweden, where the assessment includes the large class of industrial workers, is a phenomenon of great significance, and probably fairly general. Together with the income from landed property, which also increases comparatively steadily, the income from wages represents a burden upon business enterprise which, if it continues to increase in bad times, must bring down the profits of employers. The opening stage of a high conjuncture is particularly favourable for profit on business enterprises. It then usually rises very quickly. But this upward movement is presently checked, partly by the large increase of wages. As soon as the increase of the profits of employers begins to moderate its pace, or disappears, the turning point of the conjuncture is near. It is obvious that the profits of employers must form a larger part of the total national income at the commencement of a high conjuncture than at the time when the conjuncture reaches its highest point or, especially, in the depression, when the income of employers and the general income of the community are subject to opposite developments.

Our studies of the real processes of production led us to distinguish only between advancing and falling periods. A closer analysis of the fixing of prices and income makes it necessary, as we now see, to divide the former period into two sections, the first of which we may call *the period of the beginning of the advance*, the second *the high conjuncture proper* in the narrower meaning of the term.

§ 73. CONSUMPTION.

The increased production of fixed capital which characterises the high conjuncture requires, as we saw, an increase in the number of workers, and usually an extension of hours. The new workers come from the ranks of the unemployed, the youths who have not yet been employed, or the agricultural population. In each case the introduction of new workers and the extension of hours mean the creation of new income. This income represents an additional purchasing power; and as it is consumed for the far greater part, the new income means new demands upon the industries which supply the needs of the workers. To some extent these industries also are capital-producing—that is to say, in so far as there is question of building new houses for the workers. We have, further, to consider here the industries which work for mass consumption. As there is an increased activity in all these industries on account of the greater demand, new workers are needed and longer hours must be worked. The constantly increasing demand for workers, both for the capital-producing industries and those which produce articles for mass consumption, gradually forces wages up, and consequently the purchasing power of the working class.

This intensification of industrial activity is especially favourable to the textile industry. The worker's demand for clothing is particularly elastic. In bad times he has to be content to meet his need of food and clothing as well as he can. Clothes must be worn as long as possible. Hence the demand for clothing is so much greater at the commencement of the high conjuncture, and the textile industry enjoys a brisk demand. We have already shown that the textile industry is especially sensitive, amongst the industries which are not capital-producing, to the great conjuncture-fluctuations. We see this in the figures of Guild insured textile workers in Germany and in the production of cotton yarn in England.

The intensification of industrial activity which starts with the capital-producing industries spreads to further and further circles, though, as a rule, in a less degree. This raises the monetary income of other sections of the population as well as of the working class. That is why the high conjuncture has so deep a significance for the whole community.

The increased production of goods for consumption that demonstrably takes place during a high conjuncture is, naturally, consumed. Here we have a proof that consumption really increases during a high conjuncture. Production is now, as we can statistically determine, mainly a production of mass articles. As there is no doubt that industrial production to meet the needs of the masses increases considerably during every high conjuncture, we must conclude that the total real income of the working class rises proportionately during the high conjuncture.

The increased purchasing power of the working class enables it to buy a larger quantity of goods. But the increase of purchasing power involves higher prices for these goods. It follows that the real income of the workers does not increase in the same proportion as their nominal income.

This rise of prices is a fact, which we can statistically prove in the case of the chief industrial articles of consumption. As compared with the advance in the prices of the materials of fixed capital, however, this rise is a secondary phenomenon that occurs, relatively, only in a slighter measure. We already know, especially from the diagram (Fig. 16), that this is the case.

After what we have said we ought to be able to state confidently that the total real income of the workers increases during a high conjuncture. But this is mainly due to the fact that new workers are incorporated, and these were previously not employed at all, or were earning lower incomes in agriculture. In regard to the development of the real income of the individual workers who were already employed in the industry, it is, as we said before (§ 71), not possible to give a general verdict.

The contents of this section apply only to industrial production. It is true that we find the same tendencies in the sphere of agricultural production, but they are modified by the accidents of agricultural life, and therefore can rarely be clearly realised. The advance of prices that ought naturally to take place in regard to agricultural products during a high conjuncture may be neutralised by good harvests, or even turned into a fall of prices. On the other hand, the prices of agricultural products may be raised so much by bad harvests that the advance exceeds the simultaneous increase of income devoted to consumption, and to that extent the real income of the working class falls. Hence in the question of the fluctuations of real income we have the play of factors which lie outside the conjuncture-movements, in the sense in which we have used the word. The theory of conjuncture-movements cannot, therefore, supply the definitive answer to this question.

§ 74. The Formation of Savings Capital.

The total sum of the annual savings of the community can hardly be determined statistically. A great part of them is always directly connected with special enterprises. Every employer must, in order to keep his works up to date, set aside considerable sums out of his income. In the case of limited companies these sums in part form "secret reserves," the amount of which is unknown. In agriculture, also, large sums, which cannot be given in statistics, are taken from the annual income for improving the land and similar purposes. This direct formation of capital by employers must, on the whole, be very con-considerable, but escapes any estimation in statistics of capital-formation.

The savings of non-employing private individuals look out for various forms of productive investment. A large part is always invested in mortgages, and is thus of advantage to agriculture and, especially, to building. Another part is entrusted to banks of all kinds, and so indirectly contributes to production. A third part seeks issues of shares and bonds. As to the latter two groups of savings there are, it is true, certain statistical data published, but they are always incomplete and unreliable. They must, especially, not be used as a measure of the total savings, as we never know what the ratio of bank deposits and securities is to the remaining savings, and we may confidently assume that this ratio varies considerably in different countries and during different conjunctures. Bank-deposits notoriously vary a good deal, and play quite different parts in different countries. As to share-issues, they cannot for various reasons be taken as a measure of the real formation of capital. In this respect we observe only that a large part of the share-capital serves to cover floating debts or to purchase existing real capital, and therefore does not represent a real increase of the capital of the community. Issues, for instance, which serve for the conversion of private enterprises into limited companies or for the amalgamation of different companies must, clearly, not be included in statistics of the formation of real capital. We cannot ascertain, moreover, to what extent the amounts subscribed are really paid in in the same year, and still less whether the payments effected are covered by existing savings or by, so to say, a bill on the future. The statistics of share-issues show far greater fluctuations than can be supposed to exist in the real formation of capital.

An inquiry into the formation of capital cannot, further, be restricted to a single country, but must always take into account the large international movements of capital. If all these difficulties are borne in mind, it will be realised that the figures which are published as to the formation of capital do not yield any reliable conclusion as to the fluctuations of the amount of the savings which are put upon the capital-market from year to year. We are therefore compelled to form in an indirect way an approximate idea of the variations in the formation of capital in the different stages of a conjuncture.

We saw in § 72 that the income of the community increases, on the whole, very steadily, but that it falls a little in depressions, or is at all events checked in its advance. In all probability the conjuncture-movements have a rather more pronounced influence on the formation of capital.

As employers are under the economic necessity of saving, a larger part of their profit must be set aside as savings than of other classes of income. Hence if the profits of employers have a higher degree of saving than the average, the formation of the community's capital must be relatively greater at those times which are especially favourable to their profits. Such a time is the period at the beginning of an advance. We may, therefore, infer that there is a relatively considerable formation of capital at the beginning of a high conjuncture. But, as soon as wages and prices begin to rise, there is probably a diminution of the formation of capital relatively to the national income. For the working class certainly consumes a relatively larger part of its income, especially when the prices of the necessaries of life are high. At the same time the income of the employers begins to fall on account of the rise of wages, or at least the rate of increase is modified, and thus an important source of the formation of capital is enfeebled.

Hence the end of a high conjuncture should be characterised by a relative stringency in the supply of capital. It is obvious that the profits of employers will contribute relatively little toward the formation of capital during depressions. But the other sections of the national income ought, on account of the lower cost of living during a depression, especially when the worst period is over, to show a relatively large formation of capital.

These considerations make it probable that the formation of capital is, relatively to the national income, greatest at the beginning of a good period; that it does not materially diminish during the high conjuncture proper; and that after being seriously disturbed during the crisis, it gradually recovers during the depression.

CHAPTER XVIII

THE INFLUENCE OF CONJUNCTURES ON THE CAPITAL-MARKET

§ 75. Supply and Demand.

THE preceding inquiry has shown that the production of fixed capital is subject to certain variations in different conjunctures. During the depression there is a reaction: during the high conjuncture an increase above the normal. This fact, which is of great importance in connection with the whole theory of conjuncture-movements, is entirely confirmed by the data we have given in regard to production and, indirectly, by our studies of the movements of labour and prices. The main point is that this influence of conjunctures is peculiar to the production of fixed capital, and is not felt, or not in the same degree, in the sphere of production for consumption. From this it follows, in particular, that the production of fixed capital represents a larger part of the total production during the high conjuncture than during the depression. In other words, there is during the high conjuncture a shifting of the total production in the direction of a relatively greater production of fixed capital. In the depression there is a shift in the opposite direction.

Income is in the same position in regard to production as demand is to supply. If we exclude income from an increase in value of existing commodities—which is justified here, since we can imagine this income as invested in the rise of value—the income of a certain period corresponds to the production of that period. They overlap: the income is, as we saw, just sufficient to purchase the production. But the income is divided into what is consumed and what is saved. The first part goes in the purchase of articles of consumption; the second part, the savings, is used for purchasing the newly produced real capital. On the capital-market the savings appear, on the one hand, as supply, and, on the other hand, the real capital produced appears as a demand for the disposal of capital.

The question now arises what changes this capital market experiences in the various conjunctures. In order to get a clear idea of this, we will first suppose that there is no change in the use of the income—that, in other words, the consumed and the capitalised income keep the same ratio to each other. In that case both the consumed income and the formation of capital increase at the same rate as the total income. But during a high conjuncture the production of real capital increases more rapidly than the total production, and therefore the production of consumable goods more slowly. There thus arises a lack of agreement between the distribution of production and the distribution of income. In the sphere of consumption income predominates, and the conseqence must be an advance of prices for consumable goods. We have been able to show on an earlier page that this actually occurs. That the advance is generally slight is due to the fact that the displacement in the province of production is relatively unimportant as regards the production of articles of consumption, which represents the far greater part of the total production. On the capital-market production is paramount, and therefore there must be here an opposite movement of prices. And, as the range of capital-production has experienced a relatively larger change, this movement must be more pronounced. If we regard the capital-market as a market on which the fixed capital produced is offered for sale, the prices of concrete capital goods must obviously fall in the conditions supposed, and to such an extent that the balance is restored between the total value of the newly produced real capital and the income available for the purchase of it. Possibly the services of fixed capital share the rising movement of the prices of articles of consumption. In that case the ratio of the price of fixed capital to the price of utilising it will go down, which is equivalent to an advance of the rate of interest.

If, again, we regard the capital-market as one in which supply and demand of capital-disposal meet, in the conditions we have supposed the demand for capital will have a predominant tendency, and the price of it will advance—in other words, the rate of interest will rise. As rents are capitalised at this higher rate of interest, their capital values fall. This reduction in the price of capital goods so far curtails the capital-disposal required to obtain them that equilibrium is restored in the capital-market.

That a displacement in social production in favour of the production of capital, not accompanied by any corresponding change in the disposal of income, must bring about alterations of prices to the disadvantage of fixed real capital and the advantage of consumable goods, is self-evident. It is only the new prices that can restore equilibrium between income and production in their principal sections.

Depressions must, clearly, have an opposite effect. As the production of fixed capital is relatively reduced, and therefore the production of consumable goods relatively increases, the prices of consumable goods must fall, and the prices of goods which are fixed capital must relatively rise—that is to say, the rate of interest must fall.

Let us, however, now consider the fluctuations in the formation of capital under the influence of conjuncture-movements. That these conjuncture-movements have some influence on the use of income, and cause changes in the direction of a rise or fall in the amount of saving, we have in the previous chapter shown to be very probable. In the opening part of a period of advance, when employers are making good profits, the formation of capital is comparatively considerable. There is then a change in the disposal of income in the direction of increased saving. This raises purchasing power as regards capital goods, and generally to a greater extent than the production of such goods. Hence at this period we must expect a general rise of the prices of fixed capital. The fluctuations of the rate of interest will depend upon the profit on this capital.

In the high conjuncture proper, on the other hand, when the profits of employers fall and the formation of capital has a tendency to relax, while the production of fixed capital maintains its upward movement, and sometimes even increases it, and there is, therefore, a change in the disposal of income opposite to that in the sphere of production, the stringency of the capital-market is accentuated, the prices of capital goods fall, and the discount rate must rise still higher than was necessary on our first assumption.

During the depression, when the production of fixed capital goes down, the capital-market at first receives, on account of the reduced power of saving, less capital in search of investment than would be the case if there were a normal amount of saving. This modifies a little the rise in the prices of fixed capital and the decline of the rate of interest, but does not altogether eliminate them. In the later part of the period of depression, when capital is again formed more freely, though there has been no acceleration of the production of fixed capital the capital-market is bound to be very easy.

These movements are, however, influenced by the increased return on fixed capital which characterises the opening period of an advance. This increased return is the result of both the better use of fixed capital which we were able to establish at this period and the opening up of new and very remunerative uses of fixed capital, which is the starting-point of the whole upward movement. At first this increased return is probably greater than the advance in the price of fixed capital, which also we found to be characteristic of the earlier period of an advance. Hence it is that at this time the rate of interest rises, though rather slowly. During the high conjuncture proper the good return on fixed capital combines with the factors already mentioned to raise the rate of interest yet higher. During the depression the poor return on fixed capital helps to keep down the rate of interest.

There is still another factor to be taken into account in studying the influence of conjunctures on the capital-market. This is the action of the banks. In the early period of the advance they continue to supply media of payment at the earlier rate, or at all events they refrain from raising the rate of interest as speedily as the growing stringency of capital would require. In consequence of this, capital goods are capitalised at too low a rate of interest: that is to say, their prices go up. Hence the production of capital goods seems to be particularly remunerative, and employers make free use of the purchasing power which the banks offer them so cheaply. The action of the banks means, therefore, a diversion of the community's purchasing power in the direction of capital goods. There ensues a corresponding diversion of production, the supply to consumers being relatively cut down so that their demands cannot be fully met. Thus this action of the banks has the same effect as an increase of the savings of the community upon the distribution of the collective purchasing power between capital goods and consumers' goods.

The newly created purchasing power which the banks put at the disposal of employers must, of course, gradually lead to an advance of prices, and this must spread until it becomes a rise of the general level of prices. Exchange of goods then requires a corresponding increase in the supply of media of payment. This demand is met by the banks by increasing the quantity of their bank means of payment. Hence in the early period of an advance both the amount of bank media of payment and the general price-level go up. In the period of depression, on the contrary, bank credits are repaid to a great extent, the general provision of means of payment becomes more stringent, and the general level of prices falls again.

The movements we have described—the changes in the relative extent of capital-production, the fluctuations in the amount of the community's savings, the variations in the return on fixed capital, and the changes in the supply of bank media of payment—collectively cause a movement of the rate of interest and the prices of capital goods which we observe, and can to some extent statistically prove, in the various phases of conjunctures. This we will try to determine in the following sections.

§ 76. THE RATE OF INTEREST.

That the rate of interest rises sharply at the height of a high conjuncture is a generally recognised fact which we made the basis of our definition of the critical phases of conjunctures, the "turning years." Our diagrams in connection with the fluctuations of the discount rate at Berlin and London (Figs. 6 and 7) show how pronounced this rise of the rate of interest is at the highest point of a high conjuncture. After the crisis the rate generally falls rapidly: usually much more rapidly than it rose. It is interesting to follow the fluctuations month by month. In London the market discount stood on the average at 2·66 per cent. in the year 1905, but in 1906 it rose, on the average of the year, to 4·05 per cent. In November 1907 the maximum rate of 6·61 per cent. was reached. It then fell very rapidly in the following months, and in July 1908 it reached the minimum of 1·30 per cent. In November it stood at 2·27 per cent. On the Berlin Exchange the maximum rate of 7·07 per cent. was reached in December 1907. In July of the following year it had fallen to 2·75 per cent., and in December it stood at 2·92 per cent.* It is, therefore, beyond question that the capital-market is rapidly and considerably eased by the restriction which the production of fixed capital experiences in a depression, in spite of the simultaneous, but less considerable, restriction of the formation of capital.

During the high conjunctures which have lasted some time we can see how the rate of interest remains at first very moderate and does not alter much until the later years of the high conjuncture. In the case of England the upward movement of the nineties began in the year 1896, when the output of pig-iron reached the figure of 8,799,000 tons, as against 8,456,000 tons at the height of the last high conjuncture (1889).[*] But the average market discount was only 1·52 per cent. in 1896, and during the next two years it remained at the very moderate height of 1·87 and 2·65 per cent. It rose to an average of 3·29 per cent. only in 1899, and in the crisis-year 1900 it reached an average of 3·70 per cent. In Berlin the discount rate in the year 1897, when the German output of pig-iron had risen to 6,381,000 tons as against 4,658,000 tons in the turning year 1890, stood only at an average of 3·09 per cent. The following years, 1898–1900, raised the average rate to 3·55, 4·45, and 4·41 per cent. After the crisis of 1900 and the subsequent depression there was again a material increase in the production of fixed capital in the years 1903 and 1904; though the market discount did not rise above the average of 3·14 per cent. (1904). When the high conjuncture entered upon its second phase, and the production of fixed capital was still very considerable, in 1906 and 1907 (the pig-iron output being 12,875,000 tons in 1907 as compared with 8,521,000 tons in 1900), the average discount rate rose to 4·04 and 5·12 per cent. Thus the first years of an advance may enjoy a moderate rate of interest. It is only in the later years of the advance, in the high conjuncture proper, that the rate of interest rises to a height which puts beyond question the increasing scarcity of savings-capital. The fluctuations of the capital-market which theoretical considerations compel us to assume are thus entirely confirmed by the movements of the discount rate.

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* Pohle, *Monatliche Übersichten*.

In order to make quite clear the connection between the rate of interest and the production of fixed capital it will be useful to compare the fluctuations of the rate with the output of pig-iron in relation to time. Let us first try to make this comparison for the whole world. As the standard of the rate of interest we use the average of the market discount at London, Paris, Berlin, and New York.* The movements of the pig-iron output and the rate of interest during the four high conjunctures since 1873 are shown in the following table:

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[*] These and the following figures are taken from the *Statistische Jahrbuch für das Deutsche Reich.*

Year.		*Rate of Interest.*	*Pig-Iron Output.*
1st period	1873 ..	6·3 max.	15·1 max.
	1879 ..	3·5 min.	14·4
	1880 ..	3·8	18·6
	1882 ..	4·5 max.	21·6
	1883 ..	4·1	21·8 max.
2nd period	1886 ..	3·5 min.	20·8
	1887 ..	3·8	22·8
	1890 ..	4·5 max.	27·9 max.
3rd period	1895 ..	2·8 min.	29·4
	1900 ..	4·3 max.	41·3 max.
4th period	1905 ..	3·0 min.	54·8
	1907 ..	4·83 max.	61·3 max.

We see that the maxima of the pig-iron output and of the rate of interest fall regularly in the same years. In 1883 alone the maximum of the pig-iron output is delayed a year; but the figure of the previous year is not greatly exceeded. On the other hand, the minima of the iron output do not, as one would be inclined to think, correspond with the minima of the rate of interest. The rate, as may be seen in the table, only reaches its minimum at the beginning of the new period of advance, reckoning this period from the year when the pig-iron output first passes its old maximum after a depression. The advance thus defined begins for the first period in 1880, for the second period in 1887, for the third period in 1895, and for the fourth—if we take into account the maximum of 46·6 for the year 1903, which is not given here—in 1905. The minimum of the rate of interest falls, as we see, in the case of the first two periods in the year before the beginning of the advance, but in the case of the last two periods in the first year of the advance. These differences clearly depend upon the season of the

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* Pohle, *Statistische Unterlagen* (M. S.).

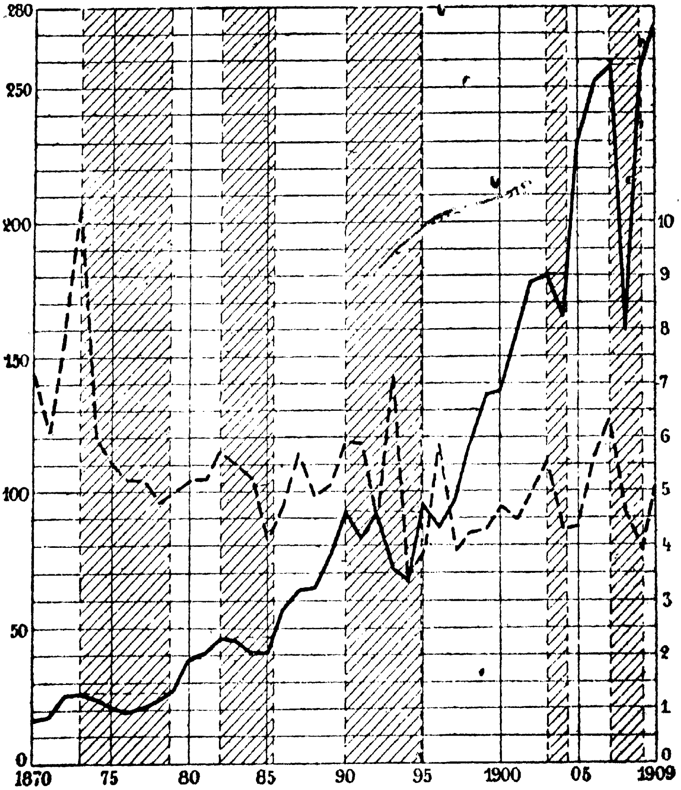

Fig. 17.—Pig-Iron Output (in 100,000 Tons, Figures on the Left) (———) and Market-Discount (Figures on the Right) (— — —): United States.

year in which the changes take place and upon other casual circumstances. We are therefore justified in drawing up the following general rule:

The rate of interest passes from a fall to a rise when the output of pig-iron reaches its old record, and from a rise to a fall when the iron output makes a new record.

This rule holds good also, with certain restrictions, for separate countries. For the United States it is represented in our diagram (Fig. 17). The continuous line represents the pig-iron output (in hundreds of thousands of gross tons, figures on the left), the dotted line the rate of the market discount at New York (figures in percentages on the right). The periods of depression are constructed on our usual method (§ 69). We see that the minimum of the rate of interest always falls at the end of the period of depression. As a rule the rate sinks during the whole period of depression.

For the course of things in England in the eighties our rule is inapplicable, as the pig-iron output decreased and was much smaller in the maximum-year 1889 than in the preceding maximum-year 1882. On the other hand, the rate of interest reached its minimum in 1879 in the depression of the seventies, or in the year before the beginning of the new advance. In 1895 also the rate fell to a minimum, and the new advance began in the following year. In 1905, when the pig-iron output for Great Britain passed its earlier maximum after the depression at the beginning of the century, the rate of interest was at its minimum.

In the case of Germany the beginning of the advance, as we have defined it, coincides, as a rule, with the minimum of the market discount, except that in the eighties the rate did not touch its minimum until 1888, whereas the period of advance began in 1887.

In regard to the maxima of the rate of interest and the iron output one notices small discrepancies when separate countries are considered. Nevertheless, our rule should be regarded as sufficiently confirmed by experience. It seems to merit attention both theoretically and practically.

§ 77. THE MOVEMENT OF STOCK PRICES.

It is not easy to draw up a general statement of the movements of the prices of fixed capital, as there is no proper market for most of the commodities in question. But the greater part of fixed capital is represented by paper of one kind or other on the Stock Exchange. The demand of savings-capital to obtain the fixed capital produced makes itself felt in part as a demand for the means of purchasing shares, and partly as a demand for loans. Shares directly represent ownership of fixed capital, but the loans which come on the Exchange as bonds bearing fixed interest also serve, from the economic point of view, as means of taking over the newly produced fixed capital. Loans are wanted not only by private persons, but by public bodies. But a considerable part of these public loans, especially municipal loans, are a means of obtaining fixed capital. When the market for these demands for capital is too stringent, it will show the same stringency as regards loans for purposes of consumption (especially State-loans). Thus the capital-market will have much the same attitude in regard to all demands for savings-capital. We shall be able, however, to show that there are important differences between the movements of bonds with fixed interest and those of ordinary shares, and these are based upon the fact that the value of the latter does not depend merely upon the rate of interest, but also very materially upon the profits of undertakings.

The stringency of capital which is felt throughout the period of advance is bound of itself to lower the value of all stocks; particularly during the high conjuncture proper, when the scarcity is, as we have seen, generally very acute. But in the early periods of advance this tendency is neutralised, as regards shares, by the excellent returns on them. Hence at first the shares have an upward movement, and they reach a maximum about the beginning of the high conjuncture proper. In consequence of the stringency of the capital-market, however, the bonds at fixed interest must at the same time fall a little in value. This decline is, it is true, very slow at first, but probably the fixed-interest bonds will have passed their highest point while the share-certificates are still rising. It is clear that the value of the bonds bearing fixed interest must be to some extent in inverse proportion to the rate of interest. Their movements are, however, in normal circumstances slower than those of the rate of interest. As the stock exchanges must, when the rate of interest is low, always count upon a possible new rise of this rate, and consequently a deterioration of fixed-interest bonds, it is only natural that the latter usually do not touch their highest point until the rate of interest has already passed its minimum, or about the beginning of a period of advance. The maximum for the shares usually comes still later, as will be understood from what we have said.

During the high conjuncture proper, when the return on fixed capital already often shows a reactionary tendency and the stringency of capital makes itself felt in a very acute form, shares are bound to be affected. The maximum for the shares must, therefore, be sought at the beginning of the said period. Even the fixed-interest bonds will now, on account of the great scarcity of capital, have to suffer a sharp reaction, which culminates during the crisis itself. It would, therefore, be wrong to suppose that it is the crisis which provokes the reaction. The scarcity of capital is so acute for some time before it that it is bound to lead to serious reactions.

During the depression, when the rate of interest is low, the fixed-interest bonds must rapidly recover, and show an upward movement. In the case of the shares the poor return is generally the paramount factor, and, though they recover a little after the crisis, it is not until after the end of the depression that they begin to be rehabilitated.

From our knowledge of the condition of the capital-market during the various phases of high conjunctures we can deduce the following general rule for the movements of stocks: both fixed-interest bonds and dividend-securities touch their minimum at the time of the crisis. After that both rise, but the bonds bearing fixed interest only until the beginning of the next advance, when they reach their maximum. Shares continue the upward movement, and only reach their maximum at the beginning of the high conjuncture proper. The reaction begins then, and it extends to all classes of bonds and shares.

Now let us test these results.

That there is a fall in stocks before the crisis occurs—even to such an extent that one may speak of a crisis on the exchange as a forerunner of the economic crisis proper—is a fact generally known from the history of crises. Here we will first consider the fluctuations of share-quotations on the Berlin Exchange in the year 1907. The index figure of the *Frankfurter Zeitung* stood on the last day of December 1906 at 162·68, and on the last day of January 1905 at 160·59.* Then there was a violent reaction, and this reduced the index figure by the end of March to 152·61. In the months of February and March eight points were lost. The next pronounced fall did not occur until October—the crisis-month—when the index figure fell from 149·10 to 143·90, or about five points. If we reckon from the maximum of the index of shares, which occurred in September 1905 and was 175·60, we see that by far the greater part of the reaction was already over before the crisis proper began. The crisis only brought down the level to a minimum of 142·91 (February 1908).

In order to be able to follow the fluctuations of bonds with fixed interest through a series of conjuncture-changes, we will consider the movements of the 3½ per cent. unconverted Imperial Loan at Berlin.† The annual averages after 1889 were:

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* The index gives the average price of one-half of the issues officially quoted on the Berlin Exchange (*Volkswirtschaftliche Chronik*).

† *Denkschriftband zur Reichsfinanzreform*, Teil IV. Pohle, *Monatliche Übersichten*.

1889	103·70 max.	1901	99·54
1890	100·45	1902	102·06
1891	98·39 min.	1903	102·30 max.
1892	99·97	1904	101·94
1893	100·38	1905	101·33
1894	102·39	1906	99·54
1895	104·44	1907	94·65
1896	104·58 max.	1908	92·61 min.
1897	103·59	1909	95·14 max.
1898	102·65	1910	93·17
1899	99·77	1911	93·46
1900	95·80 min.	1912	89·79

The minima, as we see, occur regularly in the times of crisis, and the maxima in one of the earlier years of the period of advance.

It is very interesting to compare the fluctuations of share-quotations with these. The above-mentioned index figure of the *Frankfurter Zeitung* enables us to make this comparison from the year 1904. Since that time the exchange level of the share-quotations has developed as follows:*

1904	153·91	1909	156·96
1905	168·82 max.	1910	162·77 max.
1906	163·25	1911	162·45
1907	149·29	1912	158·78
1908	145·32 min.	1913	157·59

It is remarkable that the share-quotations do not reach their maximum until 1905, or at the beginning of the high conjuncture proper and two years after the culminating year of the Imperial Loan. This is repeated in the last rising conjuncture. The Imperial Loan reached its highest point in 1909, but share-quotations seem not to have reached their maximum until the spring of 1911. This is just the time when the high conjuncture proper begins to develop.

It is especially interesting to follow the fluctuations of those shares which especially represent the production of fixed capital. According to the *Volkswirtschaftliche Chronik* the following annual averages may be stated for the Berlin Exchange:

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* According to the *Volkswirtschaftliche Chronik*.

	1904	1905	1906	1907	1908
Gelsenkirchener Bergwerk ..	219·18	230·21	224·84	198·50	189·33
Harpener Bergwerk	205·45	215·47	214·34	203·89	198·07
Bochumer Gussstahl ..	200·90	247·78	244·79	217·47	212·75
Dortmunder Union.. ..	83·40	93·67	86·50	71·02	58·54
Königs- und Laurahütte ..	243·37	261·72	243·86	225·51	207·69
Berliner Maschinenbau ..	238·35	251·88	243·89	220·09	232·55
Allgem. Elektr.-Ges. ..	219·64	234·23	217·80	198·14	212·79
Siemens und Halske	148·79	186·71	187·35	169·71	183·79

We see that these shares also have regularly touched their highest average point in the year 1905. There is only a slight exception to this in the case of the last share quoted.

§ 78. THE SCARCITY OF CAPITAL DURING A HIGH CONJUNCTURE.

The strain of the capital-market in the last part of a high conjuncture is not only felt in the rise of the rate of interest and the fall of stocks and shares. In every such period we have occasion directly to observe a real dearth of capital. This scarcity makes itself felt in a greater difficulty in raising capital, and this is prejudicial even to solid and remunerative enterprises.

These difficulties naturally react upon the production of fixed capital. It is, however, not every kind of this production that can be directly restricted. The sphere in which a restriction of production as a result of the increasing stringency of capital may first be expected is, clearly, the building trade, in which the various undertakings are carried out comparatively quickly, and therefore the curtailing of production is easiest. The scarcity of capital here makes itself felt in an increasing difficulty of selling completed houses or securing credit to continue building operations. As building is dependent to a very great extent on this securing of capital, and as it can easily refrain from beginning new buildings, the strain of the capital market leads to a decline of building operations even during the high conjuncture, and thus the maximum of this kind of activity occurs before the end of the high conjuncture. This is confirmed by the American statistics of building which we have previously given (§ 63).

It is quite otherwise with the railways and similar large enterprises. Railways are not constructed for sale. The owners have, as a rule, a considerable command of capital, and can procure what is needed even in difficult circumstances. This is, of course, particularly true of State railways. Moreover, the construction of a new railway requires a great deal more time than the building of an ordinary house. As a railway which is being constructed must be completed as far as possible even if capital becomes dear, we realise that the construction of railways will continue for some time in spite of the strain of the capital-market. And what we say here of the railways applies more or less to other large enterprises, such as tram-services, canals, electricity works, etc.

We thus quite understand that the production of fixed capital and materials therefor maintain its upward movement for a time in spite of the difficulty of getting capital. In the latter part of a high conjuncture the development is not to be expected to be the same for the building trade and its subsidiary industries as for the remaining capital-production.

In Germany this difference became very clear in the year 1907. From the very beginning of the year the building trade was announced to be in a bad way, and the situation was ascribed to the dearness of money. The branches of the iron industry which showed some deterioration in comparison with the preceding year were precisely those which supplied material to builders. Even the output of primary material and moulded goods of the steel works union was not much lower in 1907 than in the preceding year, while the output of railway material rose considerably. The difference is clearly seen in the following figures:*

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* *Volkswirtschaftliche Chronik*, 1907, pp. 695 and 772.

	1905	1906	1907
Primary material	1,911	1,862	1,558
Moulded articles	1,673	1,936	1,699
Railway material	1,631	1,936	2,327
Total ..	5,215	5,734	5,574

The greatest difference in development is found in the last months of 1907, when the output of primary material, and especially of moulded articles, fell very considerably, whereas the output of railway materials still rose substantially.

The large transport-undertakings are often compelled by the difficulty of raising capital during the high conjuncture proper to curtail their requirements of capital. The administration has then to be content with what is indispensable in regard to the improvement and enlargement of the equipment and the construction of rolling stock. This is still more necessary in the case of the smaller enterprises. But as the utilisation of the means of transport is, as we saw, very intense throughout the whole of the high conjuncture, the larger undertakings will make certain sacrifices in their efforts to get the necessary capital for their purposes. This is, of course, easiest in the case of States which are on that account least disposed to abate their demands for capital.

What serious difficulties the raising of capital during a high conjuncture may give even the largest enterprises was seen in the United States in 1907, when the railway companies were compelled to be content to a great extent with short-term loans instead of a regular issue of debentures. The part of the funded debt of the railways which is given in the statistics as "Miscellaneous Obligations" rose from $974,000,000 in the year 1906 to $1,616,000,000 in 1907, and $2,181,000,000 in 1908; though in the latter year the range of the statistics was curtailed. At the same time the bonded debt rose from $6,267,000,000 to $6,473,000,000 and $6,610,000,000.*

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* *Statistical Abstract of the United States.* We must remember that the years quoted end on June 30th.

These figures show an enormous demand of capital and very great difficulties in getting it. In the following year, 1909, the amount of "Miscellaneous Obligations" rose by only $86,000,000, while the bonded debt increased by $332,000,000. The figures evince a profound disturbance of the capital-market.

The American statistics also give the amount which the railways have to pay annually as interest on current (non-funded) debts.* The charge on this interest amounted, in millions of dollars, to:

1890	8·1	1900	4·9
1891	8·2	1901	5·5
1892	7·9	1902	7·7
1893	8·0	1903	9·1
1894	10·2	1904	13·9
1895	7·9	1905	11·5
1896	8·5	1906	11·7
1897	7·8	1907	16·7
1898	7·1	1908	31·3
1899	7·1	1909	24·2
		1910	16·5

We see how considerably the interest on the unfunded debts rises in crisis-years. Even in the preceding year there is an appreciable rise. It proves that in the later period of a high conjuncture the railway companies are unable to raise regular loans to a sufficient amount; and this again confirms the scarcity of capital during a high conjuncture as a very material fact.

From what we have said it appears that the scarcity of savings in the last part of a high conjuncture makes itself felt first in a curtailment of the kind of business in which, as in the building trade, the separate undertaking is completed comparatively rapidly, and then in an increasing difficulty of large transport businesses to raise capital, until at last, at least in the case of private companies, this can only be done by making onerous sacrifices. States and municipal bodies are least hampered in their production of fixed capital by the increasing strain of the capital-market.

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* Same source. Here again the years end on June 30th.

CHAPTER XIX

THE DETERMINING FACTORS OF CONJUNCTURE-MOVEMENTS

§ 79. The Principle of Action and Reaction.

IN our studies of conjunctures we have so far confined ourselves to the concrete processes and their direct connections. Now let us look more closely at the forces which determine the movement as impelling or restricting factors.

Of these forces the interest on capital occupies the central place. The low rate of interest that rules in the depression clearly acts as a powerful impulse to the further production of fixed capital. With a given return the value of fixed capital is so much higher the lower the rate of interest is. Hence the low rate of interest is equivalent to high prices for the already produced capital. At a time, therefore, of long-maintained low interest employers see a prospect of considerable profit if they are engaged in building, railway-construction, or in other works which represent a large amount of fixed capital. The profit can be realised by selling the houses or shares of the undertakings to members of the public in search of investments.

We have already seen (Chapter VI.) that there are always latent possible enterprises which require a good deal of fixed capital, and are therefore not remunerative when the rate of interest is high. But as soon as the rate falls, a certain proportion of these enterprises become remunerative. It will then not be long before the possibilities begin to be turned into realities. If, for instance, a railway from which we estimate a net annual revenue of £400,000 requires an outlay of £10,000,000, it cannot be constructed as long as the rate of interest is 5 per cent. But if the rate falls to 3 per cent. the enterprise becomes profitable, and will, in all probability, be carried out. Hence to a great extent the rate of interest is the decisive factor as to the economic possibility of providing permanent capital objects. In regard to the current production of consumers' goods the rate of interest has, as we know, nothing like the same importance. Hence a protracted low rate of interest is bound to accelerate the production of fixed capital much more than any other kind of production, and so bring about in the course of time that diversion of social production to the advantage of the production of fixed capital which we described as an essential symptom of the high conjuncture.

On the other hand, a high rate of interest must lower the value of fixed capital and cause loss to employers who are engaged in creating such capital. Many enterprises can scarcely be completed as long as the rate is high. The economic possibilities of the further production of fixed capital are greatly restricted. Only enterprises which promise an exceptionally high profit can be persisted in. If they prove less remunerative than had been expected, and unable to bear the high interest that is asked for the use of capital, this must have a depressing effect upon any inclination to take up new plans for the production of fixed capital.

This explains why a protracted high rate of interest brings about a decline in the production of fixed capital. But the production of consumers' goods does not suffer to anything like the same extent from a high rate of interest. This production may evince some abatement together with the decline in the production of fixed capital, but this is not to be regarded as a direct consequence of the high rate of interest during a high conjuncture; it is a secondary phenomenon. However, the direct effect of the high rate of interest on the production of fixed capital is enough to convert the high conjuncture into a depression.

Hence the rate of interest has a quite definite effect upon the conjuncture-movement, and an effect always in a contrary direction to that movement. In the depression there is a low rate of interest, and this has a restorative effect upon enterprise; in the high conjuncture there is a high rate of interest, and this acts as a brake. On the other hand, the rate of interest is itself affected by the conjunctures. The depression itself causes the low rate of interest which helps to make an end of it; the high conjuncture forces the rate up to a point where it becomes intolerable, and the high conjuncture itself is bound to collapse. There is thus a reciprocal action of rate of interest and conjuncture-movement.

This reciprocal action is only an instance of the general principle of action and reaction. If there is to be any stability at all, all action must, in the economic as well as the physical world, provoke a reaction. The fluctuations of the rate of interest are, however, not the only reactions which serve to check the conjuncture-movements. Other restricting forces are, first, the rise in the prices of the materials of fixed capital, which may, as we have seen, be very considerable, and must naturally greatly hamper the further production of such capital. A second factor checking the high conjuncture is the advance of wages. Both these elements tend to make the production of fixed capital dearer; houses, railways, factories, etc., will cost a great deal more to build than was allowed for in the plans. This phenomenon, which is a rule almost without exception during a high conjuncture, has naturally a very disturbing effect upon the possibilities of profit, even upon the economic vitality of many enterprises, and it clearly gives little encouragement to further enterprise. When the value of the already produced fixed capital is reduced in addition, on account of the low rate of interest, we quite understand how the rise of prices and wages, together with the higher rate of interest, must act as a powerful brake upon the high conjuncture. We are not surprised that these restricting forces bring to an end the abnormally swollen production of fixed capital, and consequently the whole high conjuncture.

It might rather have been asked how it is possible that in the high conjuncture proper, when the prices of the accumulated fixed capital have already begun to yield, the high prices of the materials and labour required for the creation of fixed capital can be maintained for some time. It is due to the fact that the equipment, buildings, etc., which are here in question, for the most part promise an exceptionally high profit and so leave a certain margin for advance of cost; also to the fact that the enterprises in question must, if they have been begun, be carried through even at a sacrifice.

The depression also brings out corresponding forces in opposition to itself: low prices of all materials of fixed capital and low wages. These factors cheapen the production of fixed capital, at the same time as the low rate of interest, itself a result of the depression, raises the value of the completed capital objects. The co-operation of these forces puts an end to the depression and brings on a new advance.

The rate of interest has, of course, a certain significance in connection with production itself, just as have the prices of materials. But we may leave this element out of consideration in order to bring out more clearly the essential effect of changes in the rate of interest.

The fluctuations of conjunctures are, as a rule, somewhat accentuated by the action of the banks, which we mentioned previously. If the banks keep the rate of interest too low at the beginning of a period of advance, this acts as a special encouragement to the production of capital, and helps to raise the high conjuncture still higher. The rise in the general level of prices which is caused by the unduly low rate ought at first to have the same effect.

§ 80. Further Explanation of Conjuncture-Movements.

From what we have said the conjunctures in their various phases must be regarded as a result of the reciprocal action of the enterprise of employers and the great regulators of the social economy—the prices of materials, wages, and the rate of interest, which have their roots in economic scarcity. After this explanation there still remain a few questions that need further elucidation.

In the first place it might be asked: Why does not the reaction of the various restricting forces make itself felt at once, so that any increase or decrease in the production of fixed capital is prevented from the start? It might be supposed that in this way we could gradually bring about, at least substantially, a state of constant equilibrium.

But we must bear in mind that the reactions in question always take a certain amount of time to make themselves felt. The curtailment of the production of fixed capital which occurs during a depression is, as we saw, generally continued for a certain period before its effect upon the rate of interest is fully felt. The rate of interest in turn has to remain low for some time in order to restore and consolidate the confidence of employers in the capital-market. The employers also, in fine, need time to prepare new plans, adapted to the changed conditions, and get to work on them. As long as the production of fixed capital remains below its earlier maximum, the rate of interest continues to fall, giving an increasing incentive both to the public seeking investments and to employers to enter upon new enterprises. And as soon as this reaction of the rate of interest begins, and the production of fixed capital consequently begins to rise above its last maximum, the rate of interest changes its direction, but still remains for a time too low to be able to counteract effectively the incipient advance. Our studies have also shown that the rate of interest does in fact touch its minimum at the end of the depression, that it slowly rises in the period of advance, and that it only advances rapidly during the high conjuncture proper.

The length of the conjuncture-period also is connected with the fact that the production of fixed capital requires time. The enterprises which are planned during the depression or at the beginning of the advance generally need several years for their completion. Comparatively little time is needed for erecting houses. One or two years generally suffice. Railways, canals, hydraulic works, etc., need a much longer time. Hence a brisk activity in this direction cannot at once be cut down by the restrictive forces. The length of the conjuncture-period is thus to some extent connected with the length of the period of production of the matters in question. It is, therefore, not altogether improbable that the general tendency to shorten the time required for building and other enterprises which is characteristic of our days has also co-operated in the shortening of the periods of conjunctures which seems to have taken place in the twentieth century.

Add to this that the increased production of fixed capital requires on its own side an enlargement of all the equipment and means of transport needed for this production. Even the production of consumers' goods, which has its share in the high conjuncture, though in a slighter and secondary degree, will require new machinery and larger installations. This expansion of the high conjuncture naturally takes a certain time. The profits that are made on account of the high prices of products at the beginning of a high conjuncture attract to new enterprises or enlargements, based upon the expectation that the high prices will continue. The maintenance of the high conjuncture rests to a great extent upon the hopes which were inspired by the first and really remunerative part of the period of advance, but which the later period cannot realise, because the counteracting forces, which are always unknown to or underestimated by the general public, become too strong. These forces, however, gain in strength in proportion as they are overlooked. In some spheres, perhaps, such as building, they may succeed in bringing about a restriction at the right time. Generally, however, there has to be a more or less violent crisis before the public learns not to lose sight of the laws of economic limitation.

In the second place it might be asked: While it is now clear that the conjuncture-period must be spread over a number of years, why is there not at least a gradual balancing of the strength of the upward and downward movements as a result of the restrictive reactions? To which the reply is: This would assuredly be the case if things did not happen from time to time which cause a renewal of the entire conjuncture-movement.

Of such things we have, in the first place, technical progress. We have already seen that modern technical progress is essentially embodied in a wider use of fixed capital. The best instance of this is the railways. In the nineteenth century the construction of railways was always the form of activity which gave its character to a high conjuncture. It was only in the last high conjuncture of the preceding century and the early years of this century that the leading place passed, at least in part, to another branch of enterprise—the electrical industry. In the middle of the nineties, when the rate of interest was, perhaps, lower than ever, it seems to have been mainly the various applications of electro-technics that created a new high conjuncture by their enormous demands on fixed capital, and thus started once more the fluctuations of a conjuncture. Electric tramways which had to be reconstructed entirely and required great quantities of iron material, electric lighting, large power-stations, telephones, and so on, have in the present century necessitated a vast production of fixed capital. All these improvements have become the objects of a lively demand. No country, no district, no town could be content without the blessings of these new achievements in the application of electricity. They were not intimidated by the possibility of a stringency of capital until it was impressed upon them by an exceptionally high rate of interest, or even the impossibility of getting capital at all. In this competition States and municipal bodies were at least as keen, and as regardless of the state of the capital market, as private enterprise.

In these circumstances a conjuncture-movement that is already much enfeebled is bound to be restored to full strength by some new technical advance, and it will then continue in the form of a fluctuation for some time.

Of other events with the same effect we have, especially, the opening up of new countries. When an uncivilised or half-civilised country is opened up to civilisation, there is immediately a considerable new demand for means of transport, bridges, lighting instalments, and particularly houses for a rapidly growing population—in a word, for fixed capital. The pronounced high conjunctures since the middle of the nineties have clearly been influenced to a great extent by such extensions of European civilisation. The economic opening of the whole of Eastern Asia, especially China, is bound in turn to inspire new large demands for the production of fixed capital, and will in all probability lead to fresh high conjunctures. But, naturally, the source of a revival of conjuncture-movements which lies in the opening up of new countries will disappear, though the world-economy will still have great tasks to meet, before the whole world is more or less equally equipped with the material foundations of European civilisation.

Thus every new opportunity to use fixed capital profitably on a large scale acts as a cause of a new high conjuncture. The community, as we have repeatedly pointed out, always has a large number of such opportunities, but they can only be used to a limited extent on account of the rate of interest. If this number is increased by the addition of opportunities that prove remunerative even when the rate of interest is high, there will inevitably be an extraordinary extension of the production of fixed capital, or a new high conjuncture. The man who complains of conjuncture-movements, and condemns a social order that facilitates or permits them, is really complaining of the advance of our material civilisation. Here again we notice how the critics of our social order conveniently overlook progress and all the difficulties it entails for the community, and so simplify the matter for themselves; but in so doing they make it impossible for themselves to get a deep insight into the truth.

Progress cannot be absolutely even. Every development, spiritual or material, has its periods of special activity and its reactions. As far as material production is concerned, we have particularly to bear in mind that all unevenness in production for current consumption is always bound to lead to much greater unevenness in the employment of permanent means of production of a higher order. As these are fixed capital, and as the conjuncture-movements are of their very nature fluctuations in the production of fixed capital, we can hardly conceive a complete elimination of conjuncture-movements in a progressive community. In proportion, however, as progress is retarded or made steadier, we may expect a certain moderation of the conjuncture-movements. After this observation it is only natural that the time of the great industrial revolution, when the community took the decisive step from the old to the new economic order, was bound to witness a series of pronounced high conjunctures and subsequent depressions.

When we speak of progress in the economic sense, we must always include the growth of the population. Every increase of the population demands a corresponding increase of the fixed capital of the community. An increase of fixed capital above the average must clearly give free play to conjuncture-movements. On the other hand, a generally feeble increase of fixed capital is bound to some extent to have a restrictive action on conjunctures. A community with constant population might succeed in keeping the conjuncture-movements within narrow limits. We might even discover some such effect of the growth of population upon conjunctures by comparing different countries. It is at once noticeable how much more important Germany and the United States, with their huge growth of population, are in connection with conjunctures, and how much more they are influenced by them than a country like France with a relatively stationary population.

We therefore come to the conclusion that the future of conjunctures depends essentially upon the future of material progress, conceived in both the qualitative and quantitative sense.

From our point of view, what is the position of speculation, which is very generally conceived to be an essential factor in conjuncture-movements? Certainly, it would not do to overlook the share of speculation in a high conjuncture. Exaggerated ideas and hopes of the economic possibilities of the community are powerful impelling forces in every high conjuncture. But at the bottom speculation is, apart from its excesses, only to be used as an expression of the zeal of employers to profit by meeting the increased demand of the community for fixed capital. As this demand has its roots in the desire of the community to make use of technical discoveries or new countries, the determination of the nation to grow—in a word, the national will to progress—we may say that speculation is only a projection upon the employing world of the social will to progress. The fluctuating movement of conjunctures is an outcome of the struggle of this will to progress with the economic scarcity that it encounters at all points. In this struggle speculation has its place under modern conditions, but it is not an essential form of it.

Such being the case, the conjuncture-movement is not bound up with a social order based upon private enterprise. As long as there is a will to progress, and as long as the material conditions of the satisfaction of this desire require a large use of fixed capital, we must expect a fluctuation in the productive activity of the community akin to the present conjuncture-movements.

Socialists trust that a socialisation of the means of production will make an end of conjuncture-movements in putting an end to private capitalistic enterprise. This belief seems to have little basis in the scientific analysis of conjunctures. The possibility of diverting social production excessively in the direction of an increased production of fixed capital is present in every social order. Since these changes are in the long run due to a will to progress, a desire to profit at once by new possibilities, they will hardly be more easily avoided in a Socialistic community than in a system of "private capitalism." All experience has shown up to the present that it is difficult to resist demands upon the State and the municipality, especially under a democratic constitution. Public bodies already have very wide productive functions, and these require a great deal of fixed capital. As producers they have scarcely contributed to a lessening of the conjuncture-movements; indeed, their increasing demands have made the high conjunctures all the worse. Hence a further transfer of the ownership of fixed capital to the State and the municipality is scarcely in itself a means of checking conjuncture-movements.

There is another question, which we cannot answer here: Whether public enterprise, by a more far-seeing policy, based upon a thorough knowledge of the nature of conjuncture-movements, could not bring about a certain modification of conjunctures? It remains to be seen what will come of various recent experiments in this direction. In most countries, however, the conditions for such a policy are entirely wanting.

§ 81. CRISES.

Why cannot a high conjuncture, when the conditions for its continuance exist no longer, not pass gradually into the depression, much as it itself gradually developed out of the depression? Experience teaches us that this is not the case: that the high conjuncture suddenly breaks, and often ends in a catastrophe. This catastrophe, which we call an economic crisis, is mainly characterised by a general incapacity to meet existing liabilities. The well-known accompaniments of it are great losses, compulsory sales, abnormal increase in the number and extent of bankruptcies, and a general want of confidence.

This situation shows that the employers must have gone astray on some point; they must have made calculations which have proved unsound. What is this point?

According to a very widely accepted view, the crisis must be regarded as a result of overproduction. It would therefore be due to a wrong estimate of the demand, an overestimate of the real needs of the community. It cannot be denied that wrong estimates and overestimates of this sort do commonly play a part in every high conjuncture and intensify the crisis. This was especially the case with the older forms of crisis. But in modern crises it is not primarily a question of overproduction in this sense. As the high conjuncture is characterised by an extraordinarily increased production of fixed capital, we should have to look to this sphere above all for the overproduction. But, as we proved previously, it appears that the services of fixed capital, which are the object of the demand of the consuming public, are, as a rule, not in excess even in the last part of a high conjuncture; that, on the contrary, the fixed capital has to be used to the utmost to meet the demand. Even the materials of fixed capital are not produced to excess during the high conjuncture. On the contrary, it commonly shows an unmistakable scarcity of these materials—a scarcity which makes itself felt especially in the extraordinarily high prices of such commodities. The iron output, for instance, is often sold up to the crisis, and sometimes even beyond. There can, therefore, be no question of an overproduction of the materials of fixed capital to such an extent as to serve as a general explanation of crises.

It seems, then, that no link is missing in the chain that normally connects the producers with the consumers. How is it, in that case, that the chain breaks? The answer is: *The typical modern high conjuncture does not mean overproduction or an overestimate of the demands of consumers or the needs of the community for the services of fixed capital,* *but an overestimate of the supply of capital, or of the amount of savings available for taking over the real capital produced.* What is overestimated is the capacity of the capitalists to provide savings in sufficient quantity. We must bear in mind that this capacity has to be estimated several years in advance, since, on the average, there are several years between the time when the work is planned and the time when it makes its full demand upon the community's savings. The individual employer has no other means of judging the condition of the capital-market except the rate of interest. During the depression and the first part of the high conjuncture however, the rate is low, or at least moderate. The demands for capital-disposal which result from the increased activity of employers in the sphere of the production of fixed capital do not yet make themselves fully felt. It is, therefore, quite possible that enterprises, such as the construction of houses, railways, etc., will be planned, and even begun, in such quantities that, when their need of capital afterwards makes itself felt, it cannot be satisfied.

The high conjuncture must thus be pressed onward, but at last there will come a time when it is clear that the market cannot find savings for the purchase of the real capital produced in sufficient amounts. There must then be a sudden fall in the value of the real capital, and employers must find it extraordinarily difficult to get the capital they need, either by loan or selling. On this they have not calculated in incurring the current liabilities they did in the course of their productive undertakings. When it becomes clear that they have gone astray on this point, the consequence is bound to be a general incapacity to meet liabilities incurred. This spreads wider and wider, as the whole business world depends to a great extent on the punctual discharge of obligations that fall due. There is bound to be an economic crisis.

This wrong estimate of the future condition of the capital market would not lead to such a catastrophe if the individual employer secured in advance the whole of the capital he needs to carry out his plans. Under present conditions this can rarely be done. Share-capital, which is subscribed for the purpose of realising a large undertaking, represents, as a rule, only a part, sometimes only a very small part, of the whole of the capital needed. People generally persuade themselves that in the future it will be possible to get the requisite capital by the issue of debentures, by bank-credits, and so on. Moreover, share-capital is, as a rule, not paid up at once. The payments are often deferred for fairly long periods. Here again, therefore, calculations are based upon the capital market of the future. In addition, the share subscribers usually go beyond their own means, and require capital that they must get by loans, often only for a short period. It is clear that subscriptions of this sort do not, from the economic point of view, represent a real actual command of capital on the part of employers. But even in the case where the individual enterprise has secured capital in advance, this capital will be temporarily put out at interest before it is used in the enterprise and will be placed at the disposal of the community through the banks or in some other way. It will be used in other enterprises, and will, from the economic point of view, be no longer available. In these complicated circumstances we can easily understand how the demands which actual enterprise makes upon the capital market of the future are not in their totality clearly realised, and how the capacities of this future market, to meet the demands, are overestimated. The individual who would put his business on solid foundations has always the alternative of securing the whole of his capital from the start. If the deepest cause of the crisis is a wrong estimate of the possibilities of obtaining on the future market the capital that is required for carrying out an enterprise that has been begun, the best means of meeting the danger of a crisis is in this policy. Obviously, however, it can only be done in practice to a limited extent. Calculation in advance of the future capital-requirements of an enterprise is up against the difficulty that the rise of prices and wages during a high conjuncture often adds considerably to the cost, and thus the future requirements of capital, both of the individual enterprise and the whole business world, will be greater than was calculated. To avoid unpleasant surprises of this kind it would be necessary to take account of the coming rise of prices at the beginning of a high conjuncture.

However, the question of the provision of capital during a high conjuncture cannot be fully considered from this private economic point of view. From the general economic point of view there can be no such thing as a securing of capital in advance: the capital that is used to-day must always be taken from the social income of to-day. Actually, therefore, there can only be question in any case of a correct estimate of the whole of the demands for capital which will arise simultaneously during the high conjuncture; and it is not easy to make such an estimate.

That the crisis really consists in an acute scarcity of capital—that is to say, of savings—to purchase the real capital produced is partly shown by the great difficulty of selling the ready-made fixed capital or getting means to pay the costs of its production, and partly by the very general inability to complete undertakings that have been begun. In either case the lack of capital must mean heavy losses. They are bound to be especially severe when enterprises that have been begun and cannot be completed must suffer damage, or even be destroyed and entirely abandoned. Instances of both effects of the lack of capital may be seen in every severe crisis.

The increasing stringency of the supply of capital during a high conjuncture is hidden in a confusing way from the business world by the usual considerable increase of bank media of payment at such a time, as the individual employer naturally regards these as capital. When the banks afterwards find it necessary in their own interest to cut down this excessive supply of media of payment, the real scarcity of capital is suddenly and acutely felt. It is obvious that this may accelerate and greatly aggravate the crisis.